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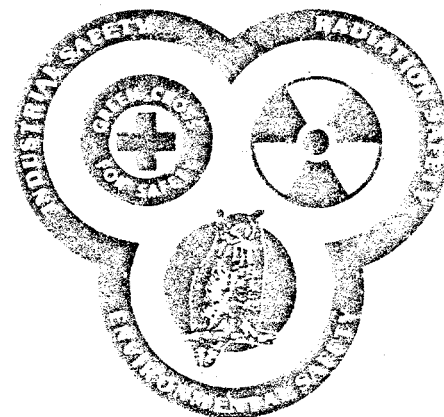
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Technical Background Information
for the Environmental and
Safety Report, Vol. 5: The
1977 Clinch River Sediment
Survey—Data Presentation

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TECHNICAL BACKGROUND INFORMATION FOR THE ENVIRONMENTAL AND SAFETY
REPORT, VOL. 5: THE 1977 CLINCH RIVER SEDIMENT SURVEY—DATA PRESENTATION

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5	<i>Technical Background Information for the Environmental and Safety Report, Vol. 5: the 1977 Clinch River Sediment Survey—Data Presentation</i>	ORNL-5878	T. W. Oakes, W. F. Ohnesorge, J. S. Eldridge, T. G. Scott, D. W. Parsons, H. M. Hubbard, O. M. Sealand, K. E. Shank, and L. D. Eyman

CONTENTS

	Page
LIST OF FIGURES	v
LIST OF TABLES	vii
FOREWORD	ix
ACKNOWLEDGMENTS	xi
HIGHLIGHTS	1
1. INTRODUCTION	1
2. HISTORICAL BACKGROUND	3
3. SOURCES OF CONTAMINATION	17
3.1 SRWDA 1	17
3.2 SRWDA 2	17
3.3 SRWDA 3	19
3.4 SRWDA 4	20
3.5 SRWDA 5	21
3.6 SRWDA 6	21
3.7 Floodplain Areas	21
3.8 Waste Ponds	22
3.9 Intermediate-Level Waste Pits	22
4. WATER SAMPLING	23
4.1 Station 1	23
4.2 Station 2	23
4.3 Station 3	23
4.4 Station 4	23
4.5 Station 5	23
4.6 Station MS-2	25
4.7 Station MS-2A	25
4.8 Station MS-4A	25
4.9 Station MS-4B	27
4.10 East Seep Monitor	27
4.11 West Seep Monitor	28
4.12 ORGDP Water Intake Sampling Station	28
4.13 Center's Ferry Sampling Station	30
4.14 Melton Hill Dam Sampling Station	30
5. WHITE OAK CREEK SEDIMENT DATA 1978-1979	33
5.1 Radioactivity in the Clinch River Sediments	33
5.1.1 White Oak Lake samples, 1979	33
5.1.2 White Oak Creek below WOD sediment samples, 1978-1979	33

6. ESTIMATE OF ACTIVITY STORED IN THE SEDIMENTS OF WHITE OAK LAKE	47
7. CLINCH RIVER SEDIMENT SAMPLING PROGRAM	49
8. TREATMENT AND SAMPLING OF CORES	51
9. ANALYTICAL METHODOLOGY	53
10. DATA REDUCTION	55
11. QUALITY CONTROL	57
12. RESULTS	59
12.1 General Discussion	59
12.2 Summary of Analytical Methods and Results	64
REFERENCES	67
APPENDIX	A-1

LIST OF FIGURES

Figure	Page
1. Gamma count at surface of Clinch River sediment	4
2. Gamma count at surface of Tennessee River sediment	5
3. Average gamma count at surface of silt in Clinch and Tennessee rivers, 1951-1958	12
4. Gross beta activity of Clinch River silt	13
5. Gross beta activity of Tennessee River silt	14
6. Solid-waste disposal areas and water-sampling stations at ORNL	18
7. Water-monitoring locations in the Clinch River	24
8. Percent of CG_w total over White Oak Dam	27
9. Percent of CG_w total for dilution calculation in the Clinch River	28
10. Tritium releases to the Clinch River (three-year intervals)	29
11. Percent of CG_w total at the ORGDP intake	30
12. Percent of CG_w total at Kingston, Tennessee	31
13. Map of White Oak Lake showing sampling locations, 1979	34
14. Sediment sampling locations in White Oak Creek, December 1979	37
15. Cesium-137 content in White Oak Creek sediment, 1978 sampling program	43
16. Cobalt-60 content in White Oak Creek sediment, 1978 sampling program	44
17. Cesium-137 content in core 23, 1978 sampling program	45
18. Cobalt-60 content in core 23, 1978 sampling program	46
19. The principle of the Swedish foil sampler shown schematically	50
20. Upper reach of Clinch River from CRM 9 to CRM 23 at Melton Hill Dam	60
21. Areas of deposition	61
22. Profile of radionuclide concentrations as a function of depth within the bottom sediment from a core taken at CRM 14.375-60 ft from the left bank	62

23. Profile of radionuclide concentrations as a function of depth within the bottom sediment from a core taken at CRM 11.5—30 ft from the left bank	63
24. Profile of radionuclide concentrations as a function of depth within the bottom sediment from a core taken at CRM 5.5—150 ft from the left bank	65

LIST OF TABLES

Table	Page
1. Cesium-137 in river silt, 1954-1958	6
2. Strontium-90 in river silt, 1954-1958	7
3. Cerium-144 in river silt, 1954-1958	8
4. Trivalent rare earths in river silt, 1954-1958	9
5. Ruthenium-106 in river silt, 1954-1958	10
6. Cobalt-60 in river silt, 1954-1958	11
7. Radionuclide content of cores obtained from Clinch River	16
8. Operational status of ORNL radioactive solid-waste storage area	19
9. Strontium-90 discharges from SRWDA 4 vs precipitation	20
10. Annual discharges of ^{106}Ru to the Clinch River	22
11. Annual discharges and total discharges of radionuclides to the Clinch River, 1949-1981	26
12. Total percent CG_w in the Clinch River	31
13. Sediment data (pCi/g wet), White Oak Lake, 1979	35
14. Cesium-137 concentration in White Oak Lake cores, 1979	35
15. Cobalt-60 concentration in White Oak Lake cores, 1979	36
16. Radionuclide concentration in White Oak Lake cores, 1979	36
17. Quantity and distribution of radionuclides in sediment cores from White Oak Creek downstream from dam, 1979	38



FOREWORD

Although division policy requires that S.I. units be used in all reports and English units be given parenthetically immediately thereafter, much of the data in this report have been taken from sources in which S.I. units were not used. Because of the additional cost and time involved in converting these data to S.I. units, this data has been left in its original form.

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TECHNICAL BACKGROUND INFORMATION FOR THE ENVIRONMENTAL AND SAFETY REPORT, VOL. 5: THE 1977 CLINCH RIVER SEDIMENT SURVEY—DATA PRESENTATION

HIGHLIGHTS

This project was initiated to examine the distribution of fission products and transuranic elements in the sediments of the Clinch River with an emphasis on locations near the proposed Clinch River Breeder Reactor (CRBR) site [Clinch River Mile (CRM) 14.6 to 18.6]. The purpose of the program was to evaluate changes that have occurred in the radionuclide distribution patterns since the last comprehensive survey was completed in 1966 (Struxness et al. 1967). The completion and operation of Melton Hill Dam subsequent to the 1966 study have altered the flow regime of the river. Additionally, no prior inventory of transuranic elements in the river has been determined.

The comprehensive program of sediment coring was completed in the fall of 1977. Areas of sediment deposition were cored at transects along the course of the river. Before collecting the cores from the river, a survey of the distribution of gross gamma-beta activity at the sediment surface was attempted through the use of a submersible G-M system. When it was used in a previous study, the G-M system, which is operated from a boat, provided an in situ estimate of the relative activity at various locations in the river from Melton Hill Dam (River Mile 23.5) to Watts Bar Lake (below the confluence of the Clinch and Tennessee rivers). However, the G-M system did not prove useful for this study because the radiation activities of interest in the sediment could not be distinguished from background radiation.

A Swedish foil sampler was used to collect the cores. This device collects 2.5-in. (6-cm) diameter cores in continuous lengths up to 69 ft (21 m). The Swedish foil sampler is a piston corer that because of its unique design provides a capability to retrieve intact, undisturbed cores without vertical cross contamination. It incorporates thin stainless steel foils that move with the sample and virtually eliminate sample distortion. Lengths of cores recovered ranged from 4 in. (10 cm) to 13 ft (4 m).

There will be two reports describing the 1977 Clinch River sediment study. This report includes historical background, sampling and analysis procedures, and data presentation. The second report includes the data assessment.

1. INTRODUCTION

Since the establishment of Oak Ridge National Laboratory (ORNL) at the X-10 site in 1943, radioactive materials have been and are being released into the White Oak and Melton Branch basins and have entered their drainages. The radioactive materials are transported downstream and into the Clinch River. The releases are the result of normal plant discharges, sewage outfalls, and seepage from both liquid-waste disposal areas (ponds, pits, and trenches) and solid-waste burial grounds. Part of the radioactivity becomes associated with the bottom sediments by absorption on both bottom clays and suspended particulates, which ultimately settle out. By measuring the accumulation of radioactive materials in the bottom sediments, information can be obtained regarding the dispersal or reconcentration of wastes in the environment.

The Clinch River was surveyed for radioactivity content in the 1950s and also in the 1960s before the completion of Melton Hill Dam. A final report was released in 1967 on a five-year (1960–1964) comprehensive study of the fate of radionuclides discharged into the Clinch River (Struxness et al. 1967). In the studies, no analyses were performed for alpha emitters. Also, at the

time of the original studies, the Clinch River had unidirectional flow. Since the completion of the Melton Hill Dam, the flow is no longer unidirectional because of the interactive effects between Melton Hill Dam and Watts Bar Dam about 61 river miles downstream. The flow pattern is now estuarine.

This study was based on several considerations: (1) the changed hydrology of the Clinch River, which could have an important effect on the distribution of activity observed in the earlier study; (2) the absence of analyses for determining the amount of transuranic radionuclides in the river [since monitoring began in August 1974, analyses of the White Oak Dam (WOD) discharge have indicated about 5 Ci of activity, corresponding to transuranic nuclides, have passed over the dam]; and (3) the need to establish baseline levels of contamination around the CRBR site before building and operating this facility.

The primary objective of this study was to determine the fate and distribution of nuclides in the Clinch River by analyzing selected cores for transuranic radionuclide activity and to examine the effect of the altered flow regime in the Clinch River on the distribution of the fission product activity. Cores were collected along the full length of the Clinch River from the WOC outfall (CRM 20.8) to locations in the Tennessee River on either side of the junction of the two rivers. The sampling was concentrated around CRM 20.8 and the proposed CRBR site. An inventory of alpha-emitting radionuclides and gamma-emitting fission products and their lateral and vertical distribution patterns in the Clinch River was established.

2. HISTORICAL BACKGROUND

Annual surveys of bottom sediment contamination of the Clinch and Tennessee rivers were made from 1951 to 1964. The surveys for 1951, 1952, and 1953 were performed by the staff of the Radioactive Waste Disposal Research Section of the Health Physics Division. Only gamma-radiation levels were measured. In subsequent years, 1954–1964, a collection of samples of the upper strata of sediment with a hand dredge was included in the annual surveys. Composites of the samples from each section were analyzed for radionuclide content.

Observation sections in the Clinch River extended from the mouth of the river up to CRM 21.5, just above White Oak Creek (WOC). In the Tennessee River, the most upstream site for the surveys was at Tennessee River Mile (TRM) 570.8, slightly upstream from the mouth of the Clinch River. The downstream terminus of most surveys since 1957 was Gunter'sville Lake at TRM 354.5. Bottom surveys in 1952 and 1961 were extended to near the mouth of the river to TRM 24.0, to determine the downstream limit of contamination (Struxness et al. 1967).

Beginning in 1954 and extending through 1958, the survey was performed by the Area Monitoring Group of the Health Physics Division (Cottrell 1960). The gamma radiation of the surface of the bottom sediments was measured using a flounder (a submersible Geiger-Mueller counting system) in situ. Samples of bottom sediments for laboratory analysis were obtained with an Eckman dredge. No core samples were taken.

At designated sampling points, cross-sectional readings were taken using flounder measurements and sediment samples at intervals along the traverse from one bank to the other. Fifty-foot (15-m) intervals were used in the Clinch River, but an average of ten readings and samples was taken per traverse in the Tennessee River and in the reservoirs. Cross sections were taken every 2 miles (3.2 km) in the Clinch River and every 10 miles (16 km) in the Tennessee River and in the reservoirs. Background data were taken in Norris and Fort Loudoun reservoirs, which were free of radioactivity that could be attributed to ORNL liquid discharges.

Readings were taken in the Clinch River from CRM 27.5 to the confluence of the Clinch and Tennessee rivers (TRM 567.6) and in the Tennessee River from TRM 570.8 to 475.1. The 1957 and 1958 surveys were extended downstream to TRM 354.4.

The in situ gamma measurements made on the bottom sediments were corrected for cosmic-ray background and averaged for each cross section. The background readings in Fort Loudoun reservoir averaged 10 counts/s over the four years.

Plots of the average count vs river mile for the Clinch and Tennessee rivers are in Figs. 1 and 2. The results of the radiochemical assay of the river silt are in Tables 1–6. These data cover the period 1954–1958.

The gamma count rate showed a gradual increase from the point of entry of the wastes from WOC (CRM 20.8) downstream, peaking at CRM 11.0 during 1954 and 1955 and at CRM 8.0 during the later years. Downstream from the peaks, the gamma count remained fairly constant, except for low readings where the silt appeared to be scoured from the river bottom. The increase in radiation level downstream from the point of entry has been attributed to the velocity of the river, which prevented the silt from settling until it reached the point where the water had slowed down. Any constrictions in the river channel were associated with a decrease in gamma count rate because of an increase in velocity. Immediately below the Melton Hill Dam, the scouring action was detected for at least 20 miles (32 km) downstream. The radioactivity level in the bottom sediments dropped off dramatically on entering the Tennessee River and continued to decrease downstream.

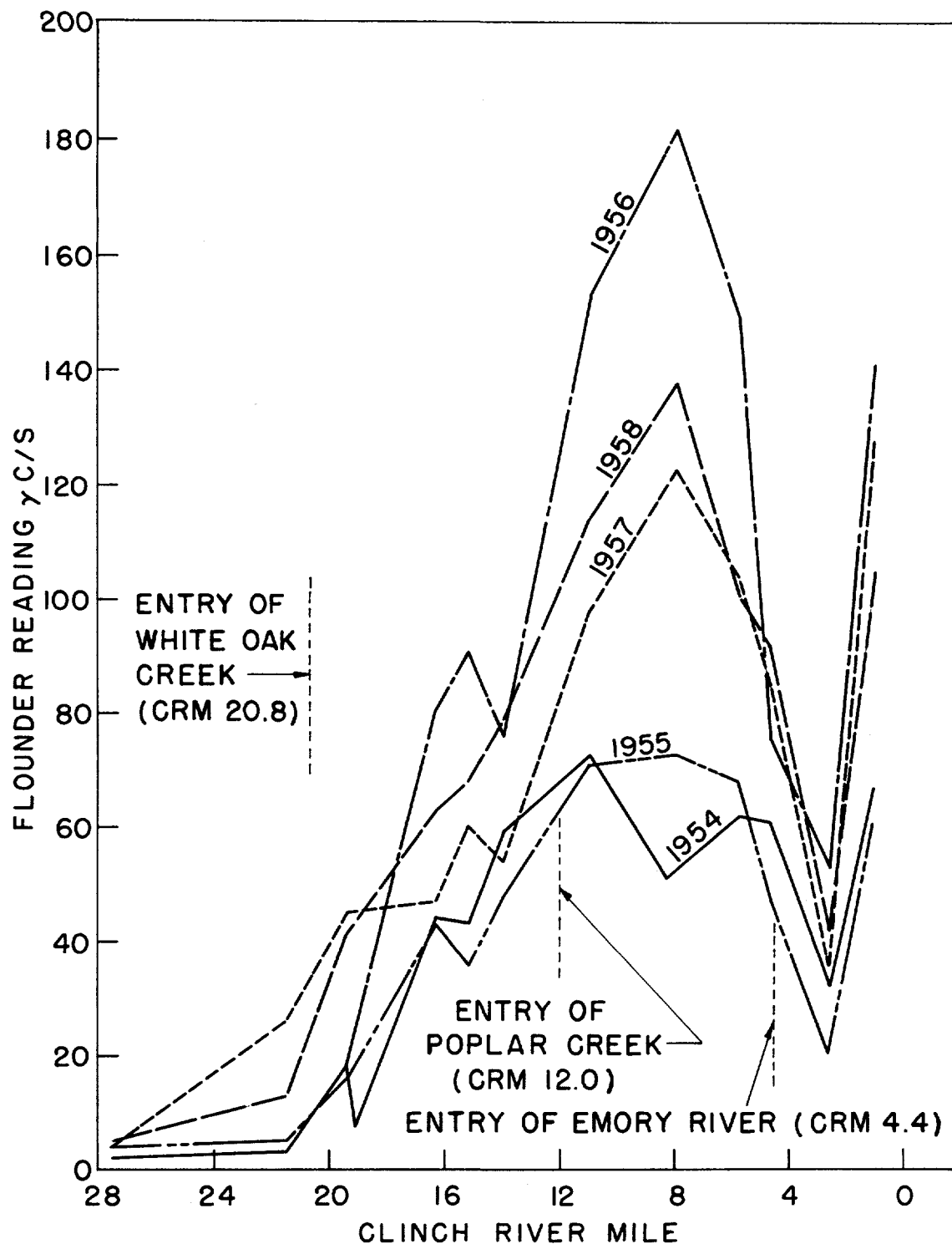


Fig. 1. Gamma count at surface of Clinch River sediment.

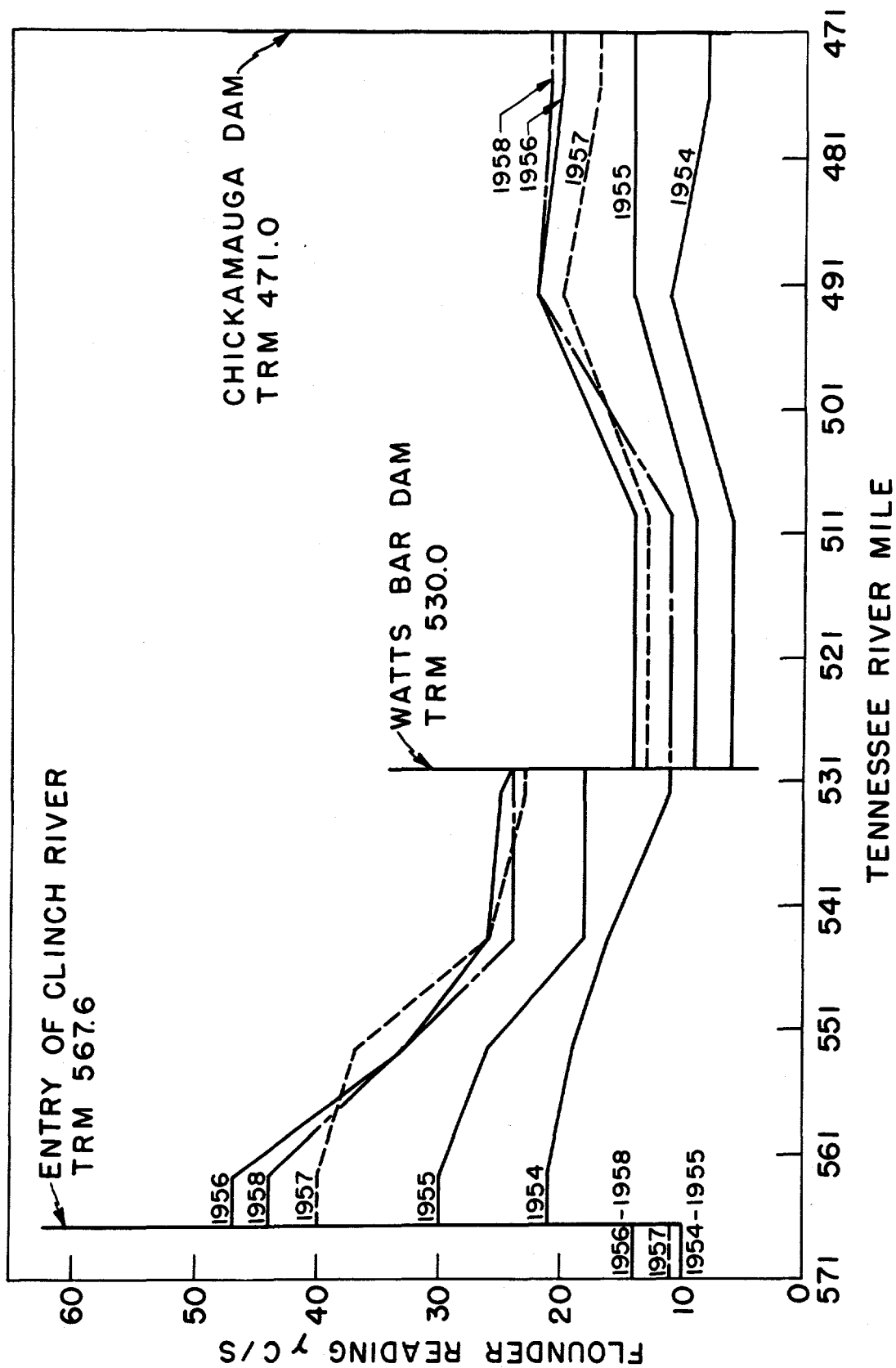


Fig. 2. Gamma count at surface of Tennessee River sediment.

Table 1. Cesium-137 in river silt, 1954-1958^aActivity in units of pCi/g of dried mud^b

Sample location	¹³⁷ Cs				
	1954	1955	1956	1957	1958
TRM 604.1	2	2	5		2
Ft. Loudoun Lake ^c					
CRM 21.5	3	5		5	4
19.1	12	7	116	528	44
16.3	27	22	208	177	223
15.2	22	34	268	119	146
14.0	24	29	115	184	298
11.0	22	34	144	251	236
8.3	22	38	244	178	170
5.7	24	29	266	299	223
4.7	22			236	151
2.6	15			173	92
1.1	24	25	257	192	167
Average	19.7	24.8	202	213	159
TRM 570.8	3			5	2
562.7	10	7	73	55	51
552.7	12			57	36
534.8	5			47	22
532.0	10	11	32	39	21
509.5	3			20	10
491.9	5		20	20	16
475.1	5	2	14	16	13
Average	7	7	35	32	21
TRM 434.1				13	9
381.2				7	7
354.5				7	4

^aAll samples were taken during summer. No data are available on month-to-month changes.

^bTo convert to becquerels, multiply curies by 3.7×10^{10} .

^cBackground.

Source: Cottrell 1960.

Table 2. Strontium-90 in river silt, 1954-1958^aActivity in units of pCi/g of dried mud^b

Sample location	⁹⁰ Sr				
	1954	1955	1956	1957	1958
TRM 604.1 Ft. Loudoun Lake ^c	2	1.4	1.3		1.1
CRM 21.5	1			1	1
19.1	5		4	3	2
16.3	5	4	7	5	6
15.2	5		9	5	6
14.0	5	4	4	3	11
11.0	5	4	6	5	13
8.3	4	4	6	5	6
5.7	4	4	6	7	1
4.7	4			5	8
2.6	3			3	5
1.1	4	3	6	3	5
Average	4	4	6	4	6
TRM 570.8	2			0.9	1.0
562.7	2	0.3	3	0.8	2.0
552.7	2			0.5	1.5
543.8	2			0.9	1.7
532.0	4	0.4	3	0.6	1.7
509.5	3			1	1.6
491.9	2		2	0.6	0.1
475.1	2	0.3	2	1.3	1.3
Average	2.0	0.3	3.0	0.8	1.4
TRM 434.1				1.4	1.9
381.2				0.8	1.9
354.5				0.7	1.5

^aAll samples were taken during summer. No data are available on month-to-month changes.

^bTo convert to becquerels, multiply curies by 3.7×10^{10} .

^cBackground.

Source: Cottrell 1960.

Table 3. Cerium-144 in river silt, 1954-1958^aActivity in units of pCi/g of dried mud^b

Sample location	¹⁴⁴ Ce				
	1954	1955	1956	1957	1958
TRM 604.1	1	1.7	3		4.7
Ft. Loudoun Lake ^c					
CRM 21.5	2	4		5	12
19.1	5	6	24	33	7
16.3	8	21	37	12	20
15.2	7	32	56	9	22
14.0	8	22	20	7	43
11.0	8	31	41	10	40
8.3	5	32	48	10	16
5.7	8	40	56	12	24
4.9	7			13	21
2.6	4			9	17
1.1	5	30	44	13	22
Average	6	24	40	12	22
TRM 570.8	1			1.3	5.7
562.7	2	13	15	5.5	8.0
552.7	2			4.3	9.6
543.8	1			3.0	7.2
532.0	2	15	8	2.6	4.9
509.5	1			1.9	6.2
491.9	2		6	1.8	4.6
475.1	2	4	4	1.6	6.2
Average	2	11	8	2.7	6.6
TRM 434.1				3.4	7.2
381.2				3.4	5.4
354.5				1.6	4.7

^aAll samples were taken during summer. No data are available on month-to-month changes.

^bTo convert to becquerels, multiply curies by 3.7×10^{10} .

^cBackground.

Source: Cottrell 1960.

Table 4. Trivalent rare earths in river silt, 1954-1958^aActivity in units of pCi/g of dried mud^b

Sample location	Trivalent rare earths plus ⁹⁰ Y				
	1954	1955	1956	1957	1958
TRM 604.1	2	1.7	3		4.8
Ft. Loudoun Lake ^c					
CRM 21.5	1	3		2	3
19.1	2	3	7	10	6
16.3	4	5	11	5	13
15.2	4	7	15	4	17
14.0	4	8	7	4	21
11.0	6	16	19	8	18
8.3	4	24	19	6	14
5.7	8	12	18	7	15
4.9	5			6	13
2.6	5			5	10
1.1	4	9	15	5	12
Average	4.4	10	14	6	13
TRM 570.8	1			1.1	5.1
562.7	3	6	6	1.9	5.5
552.7	1			2.7	6.1
543.8	2			1.3	5.5
532.0	4	7	4	1.5	5.5
509.5	3			1.7	6.1
491.9	2		3	1.3	5.3
475.1	2	6	1.8	1.0	6.4
Average	2	6	4	1.6	5.7
TRM 434.1				1.8	8.1
381.2				1.3	2.6
354.5				1.4	4.7

^aAll samples were taken during summer. No data are available on month-to-month changes.

^bTo convert to becquerels, multiply curies by 3.7×10^{10} .

^cBackground.

Source: Cottrell 1960.

Table 5. Ruthenium-106 in river silt, 1954-1958^aActivity in units of pCi/g of dried mud^b

Sample location	¹⁰⁶ Ru				
	1954	1955	1956	1957	1958
TRM 604.1	1	0.5	3		4.6
Ft. Loudoun Lake ^c					
CRM 21.5	1			3	6
19.1	8		5	14	3
16.3	5	4	8	6	7
15.2	5		11	3	6
14.0	6	4	6	4	16
11.0	2	5	7	6	12
8.3	5	4	10	5	7
5.7	5	8	8	6	11
4.9	5			5	10
2.6	5			4	6
1.1	3	4	10	6	10
Average	5	5	8	6	9
TRM 570.8	3			1.3	2.6
562.7	2	3	4	3.1	4.1
552.7	1			3.4	5.4
543.8	2			3.1	3.1
532.0	1	4	3	2.0	2.0
509.5	1			2.3	3.4
491.9	1		2	1.8	3.7
475.1	1	1	3	1.5	3.5
Average	2	3	3	4	2
TRM 434.1				2.9	3.5
381.2				0.9	2.5
354.2				1.7	2.3

^aAll samples were taken during the summer. No date are available on month-to-month changes.

^bTo convert to becquerels, multiply curies by 3.7×10^{10} .

^cBackground.

Source: Cottrell 1960.

Table 6. Cobalt-60 in river silt, 1954-1958^aActivity in units of pCi/g of dried mud^b

Sample location	⁶⁰ Co				
	1954	1955	1956	1957	1958
TRM 604.1	4	0.0	1.0		0.6
Ft. Loudoun Lake ^c					
CRM 21.5	3	2			3
19.1	11		26	30	4
16.3	19	18	39	15	21
15.2	19		59	14	9
14.0	19	23	29	17	16
11.0	19	25	37	15	15
8.3	23	29	50	15	17
5.7	31	26	52	18	17
4.9	27			15	14
2.6	19			13	9
1.1	23	21	46	16	13
Average	19	21	42	15	12
TRM 570.8	4			1	0.8
562.7	8	7	11	6	5.7
552.7	6			6	6.1
543.8	7			5	3.6
532.0	7	13	7	3	2.9
509.5	4			2	2.1
491.9	5		4	3	3.1
475.1	5	4	6	3	1.7
Average	5.8	8.0	7.0	3.6	3.3
TRM 434.1				2.0	1.7
381.2				2.0	1.7
354.5				0.3	2.5

^aAll samples were taken during summer. No data are available on month-to-month changes.

^bTo convert to becquerels, multiply curies by 3.7×10^{10} .

^cBackground.

Source: Cottrell 1960.

Figure 3 presents the average gamma count rates for both the Clinch and Tennessee rivers from 1951 to 1958, along with the corresponding radioactivity discharged to the Clinch River. While there are fluctuations, the general trend is toward increasing levels of activity.

The large increase from 1955 to 1956 was primarily because of the draining of White Oak Lake, which resulted in the scouring of contaminated silt from the bottom of the lake bed. The decrease in count shown in 1957 was attributed either to the relocation of the contaminated silt or to its covering and shielding by uncontaminated silt.

The gross beta activity analyses of the composite silt samples were not accurate portrayals of the actual quantity of activity present because they were reported in terms of ^{204}Tl and would only be accurate if all the activity were ^{204}Tl . Gross beta results are shown for the Clinch River and Tennessee River in Figs. 4 and 5.

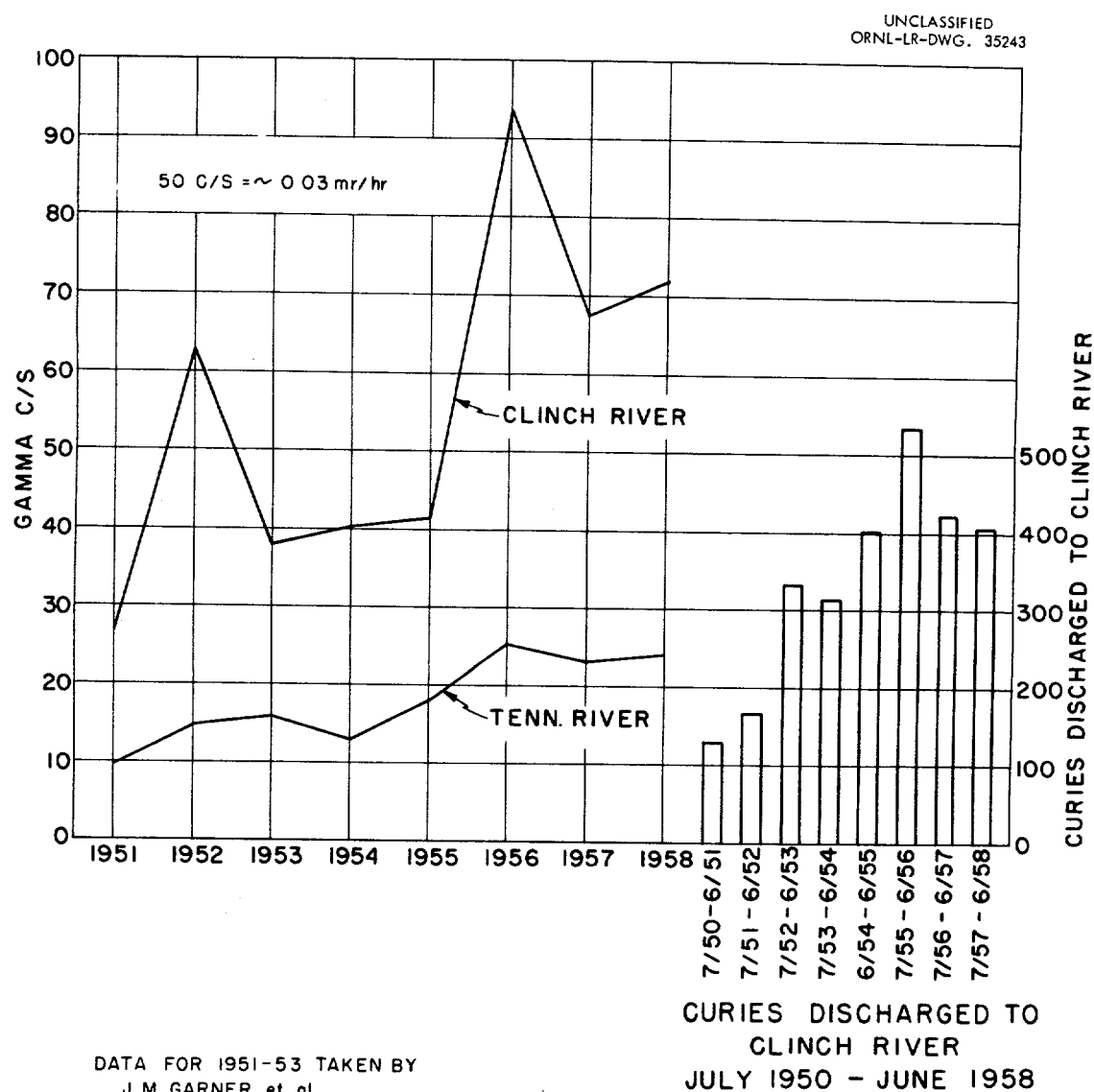


Fig. 3. Average gamma count at surface of silt Clinch and Tennessee rivers, 1951-1958.

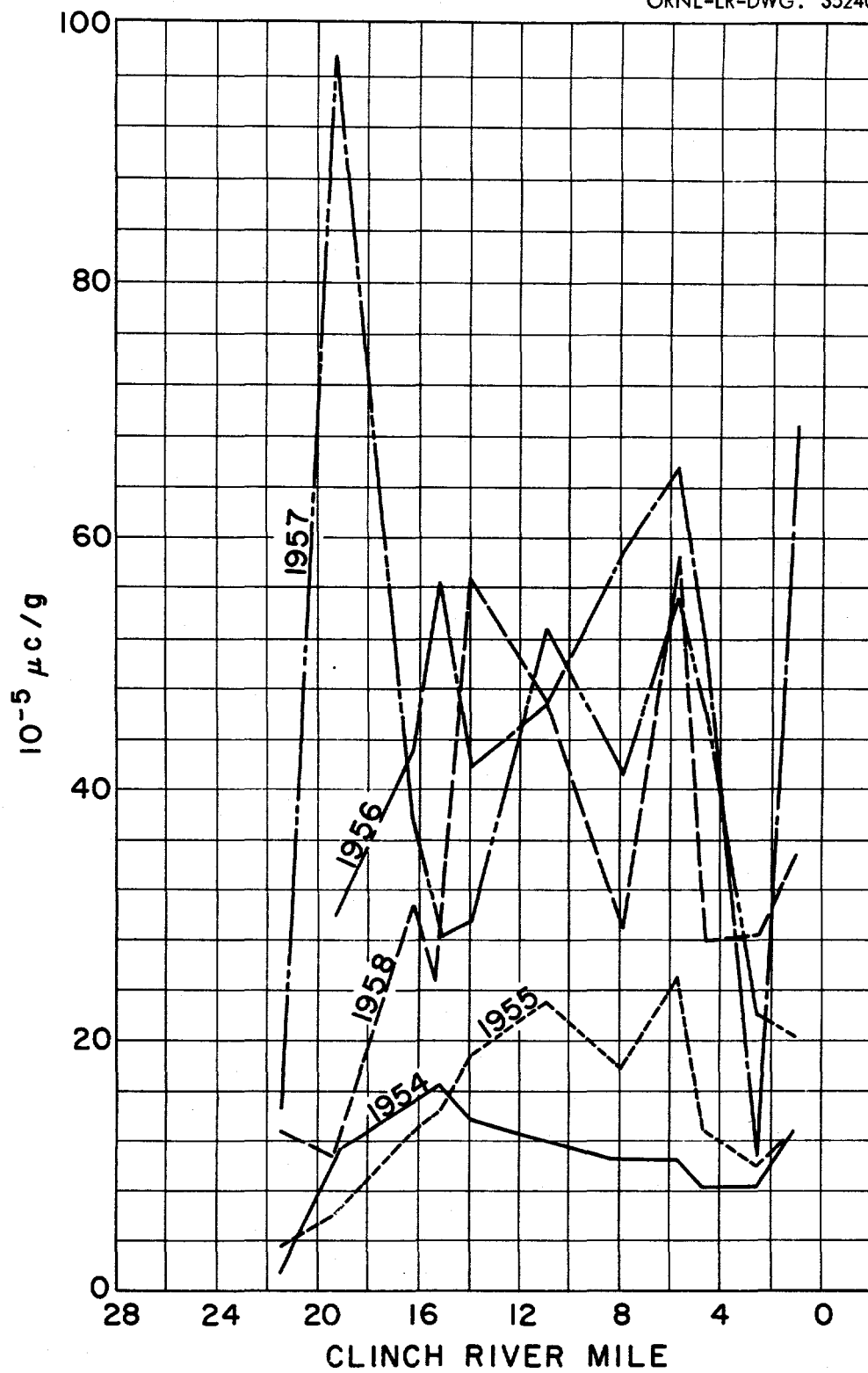


Fig. 4. Gross beta activity of Clinch River silt.

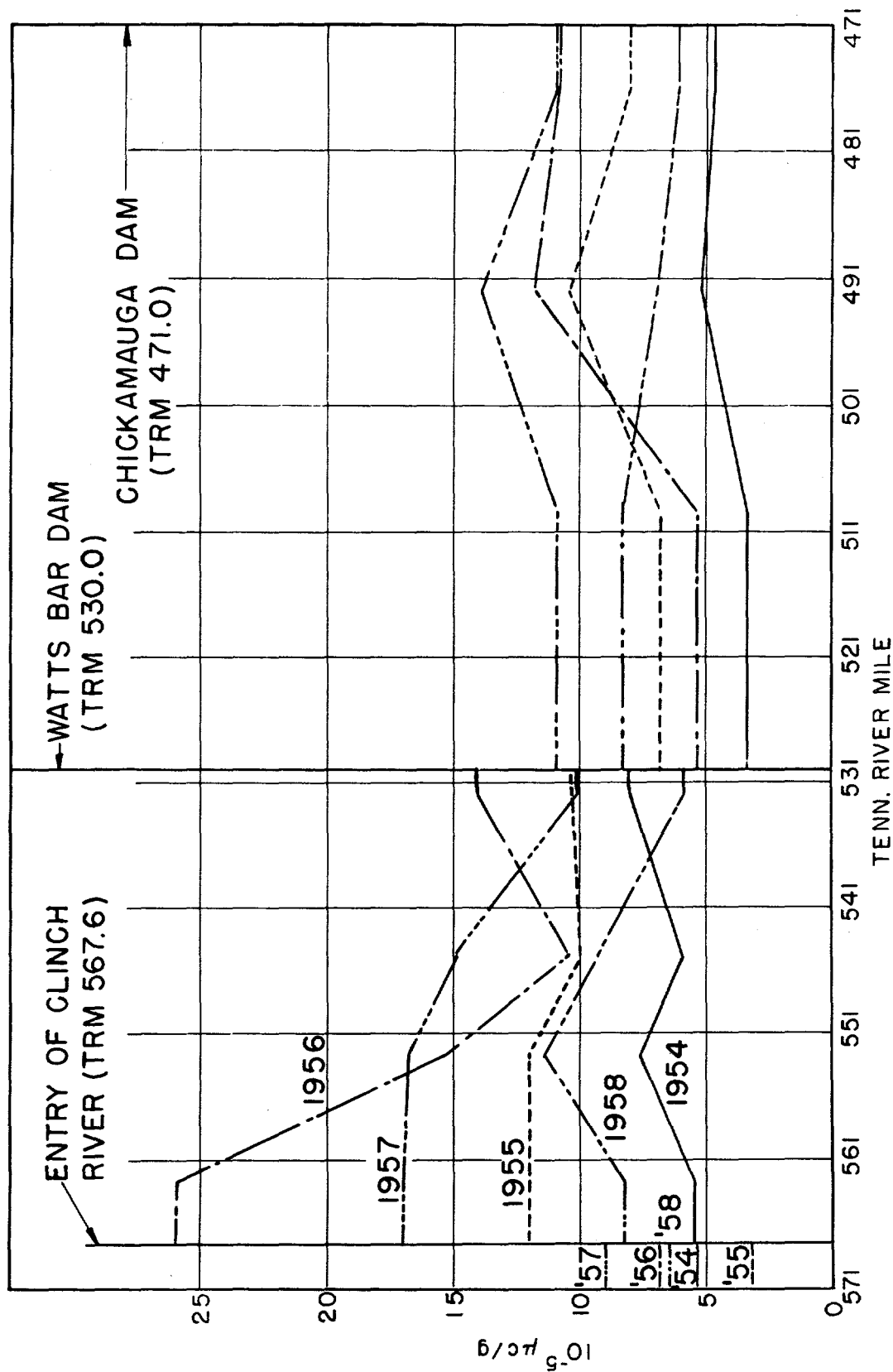


Fig. 5. Gross beta activity of Tennessee River silt.

Radiochemical analyses conducted on the composite samples indicated that the major radioactive constituents of the Clinch and Tennessee rivers silt were Cs, Ce, and Co, with smaller amounts of Sr, Y, Ru, and trivalent rare earths [TRE (Cottrell 1960)]. The best correlation of radionuclides discharged to radionuclide concentration in the sediments was observed for ^{137}Cs . This would be expected because of the ability of soil particles to absorb ^{137}Cs .

The next Clinch River study was conducted over a five-year period, from 1960 to 1964 (Struxness et al. 1967). Radionuclides of primary importance in the study [based on quantities released, radioactive half-lives, and recommended CG_w values (concentration guides for water)] were ^{60}Co , ^{90}Sr , ^{106}Ru , and ^{137}Cs . The distribution, redistribution, and concentration of these radionuclides were determined by systematic collection and analysis of samples of water, bottom sediment, fish, and other aquatic organisms. Results of the water-sampling and analysis program indicated that ^{90}Sr , ^{60}Co , and ^{106}Ru in the waters of the WOC, Clinch River, and the Tennessee River were associated principally with "dissolved" solids. This means that the radionuclides were either in solution or retained by very fine suspended particles. In marked contrast, most of the ^{137}Cs (69–92%) was associated with the larger size of suspended solids in WOC and Clinch River waters. In the Tennessee River, however, 70–80% of the ^{137}Cs was in solution or associated with very fine solids, that is, solids not removed by a high-speed centrifuge.

Results of the analyses of cores taken from bottom sediments of the Clinch River indicated that the variation of gross gamma radioactivity with depth essentially reflected the variations of ^{137}Cs concentration in sediments. There were notable correlations in the annual releases of ^{137}Cs with depth of the ^{137}Cs in the sediment of many cores. This observation suggested that the ^{137}Cs was deposited in the bottom sediments by the settling of suspended solids entering the river from WOC.

Representative cores of the contaminated sediments in the Clinch River bottom were recovered and analyzed. In 1960, a set of 2-ft (61-cm) cores was taken with a Phleger sampler. Though it was known that the total depth of contaminated sediment had not been sampled, it was estimated that in the top 14 in. (35.6 cm) of sediment (between CRM 4.7 and CRM 20.8) 76.5 Ci* of radioactivity was present: ^{137}Cs , 43.2; TRE, 14.7; ^{106}Ru , 13.2; ^{60}Co , 4.7; and ^{90}Sr , 0.7 Ci. At the same time, another estimate was made that assumed that the total depth of sediment from CRM 0.0 to CRM 20.8 was uniformly contaminated and that the concentrations were the same as those in the 2-ft (61-cm) cores. Under these assumptions, the estimated total was 1670 Ci: ^{144}Ce - ^{144}Pr , 3.3; ^{106}Ru - ^{106}Rh , 958; ^{137}Cs - ^{137}Ba , 610; ^{95}Zr - ^{95}Nb , 6.5; ^{60}Co , 66.8; ^{90}Sr , 25.6 Ci.

Because of the wide difference in the estimates and the limited coring, a more comprehensive coring program was undertaken in 1962 with the Swedish foil sampler. The first step in the processing of the 1962 cores was gross gamma scanning. A collimated detector system called a core scanner was used for this purpose (Struxness et al. 1967). The scanner automatically counted the gross gamma radioactivity throughout the full length of the core in 2-in. (5-cm) increments. During this counting, the core remained undisturbed and frozen in its foil and plastic casing.

All cores were cut horizontally at the base of the radioactive zone, and the radioactive portion of the core was cut vertically into quarter cylinders. One of the quarter cylinders was composited; wet and dry weights and volume were measured; and an aliquot of wet composite was set aside for particle-size analysis. The dried composite (dried at 100°C) was analyzed for gamma-emitting radionuclides using a pulse-height analyzer and a computer program and was analyzed for ^{90}Sr and

*To convert to becquerels, multiply curies by 3.7×10^{10}

rare earths by radiochemical separations and beta counting. To obtain a satisfactory inventory, 163 cores were taken at 132 coring sites across 18 sections. From the results of the core analyses, a total inventory of 201 Ci was computed to be in the Clinch River from CRM 0 to CRM 20.8, including the tributaries. The radionuclide content of these cores is shown in Table 7.

Table 7. Radionuclide content of cores obtained from Clinch River

Nuclide	Curies ^a	Percent of total	Percent of nuclide released over White Oak Dam in sediment ^b
¹³⁷ Cs	154.6	77.0	21
⁶⁰ Co	17.5	8.7	9
¹⁰⁶ Ru	15.5	7.7	0.4
Trivalent rare earths	10.2	5.1	c
⁹⁰ Sr	2.9	1.5	0.2

^aTo convert from curies to becquerels, multiply curies by 3.7×10^{10} .

^bThese values have taken radioactive decay into account.

^cNot obtained because of the different half-lives and the unknown relative abundance of the various rare earths.

3. SOURCES OF CONTAMINATION

Six solid radioactive waste disposal areas (SRWDA) have been used since ORNL began operation in 1943. The locations of these SRWDAs are shown in Fig. 6 (Oakes and Shank 1979). Locations of the first three SRWDAs were selected primarily for convenience (Webster 1976). Few geologic or hydrologic considerations were given to the site selections.

As the volume of waste increased, more attention was given to site selection. Areas underlain by Conasauga shale formation make excellent sites for waste disposal because the shale is easily excavated and has sorption properties that inhibit the migration of ^{137}Cs through the soil. Melton Valley is underlain by this formation and is the location of three of the SRWDAs that have been operational since 1951. The current operational status and land area of the solid-waste areas are given in Table 8. Other sources of radioactive contamination on the site include settling basins, impoundments, trenches, and pits.

3.1 SRWDA 1

SRWDA 1, with a total area of 1 acre (4047 m^2), is located at the foot of Haw Ridge. It is at the edge of the Laboratory complex and is about 25 ft (7.4 m) south of WOC. This site was selected because of its proximity to the Laboratory; no consideration was given to the possibility of waste leaching into the water system. Waste was dumped into open trenches and backfilled. There are no available records showing the quantity or kind of solid waste disposed of in these areas. Very little monitoring data are available from the SRWDA 1 area (Webster 1976). This area was closed in 1944 because water was found in one of the trenches. In 1946, the site was surveyed for surface contamination, and soil samples were analyzed. The results from only two areas indicated radioactivity above background levels. Water samples from two wells and a surface seep in this area were analyzed for ^{90}Sr , ^{137}Cs , and transuranic elements in 1975. Low concentrations of ^{90}Sr [9.4 dpm/mL (157 Bq/L)] were present in one of the wells. No detectable quantities of ^{137}Cs or transuranic elements were found (Duguid 1976).

3.2 SRWDA 2

SRWDA 2 was operated between 1944 and 1946 and covered about 4 acres ($1.62 \times 10^4 \text{ m}^2$). The site located on the lower half of a hill near the east entrance of the Laboratory was selected primarily to minimize personnel exposure during the transportation of the waste (Webster 1976). Apparently, very little attention was given to environmental protection.

There are no available records that document the quantity or kind of solid waste disposed of in this area. We have ascertained that solid waste contaminated by beta or gamma activity was placed in black iron drums and buried in the trenches. Liquid waste contaminated by plutonium was placed in stainless steel drums and either buried in trenches or stored without burial in a natural ravine eroded in the denuded slope (Webster 1976).

Use of the SRWDA 2 site was found later to be incompatible with the long-range land-use planning at the Laboratory, and the operation was terminated in 1946. After closure, most of the waste was exhumed and reburied in SRWDA 3. The stainless steel drums containing liquid plutonium waste were removed intact, but the black iron drums containing beta-gamma solid waste had deteriorated. Thus, the surrounding earth was also removed and reburied at SRWDA 3. The hillside of the SRWDA 2 site was bulldozed to smooth out the irregularities and then seeded (Oakes and Shank 1977).

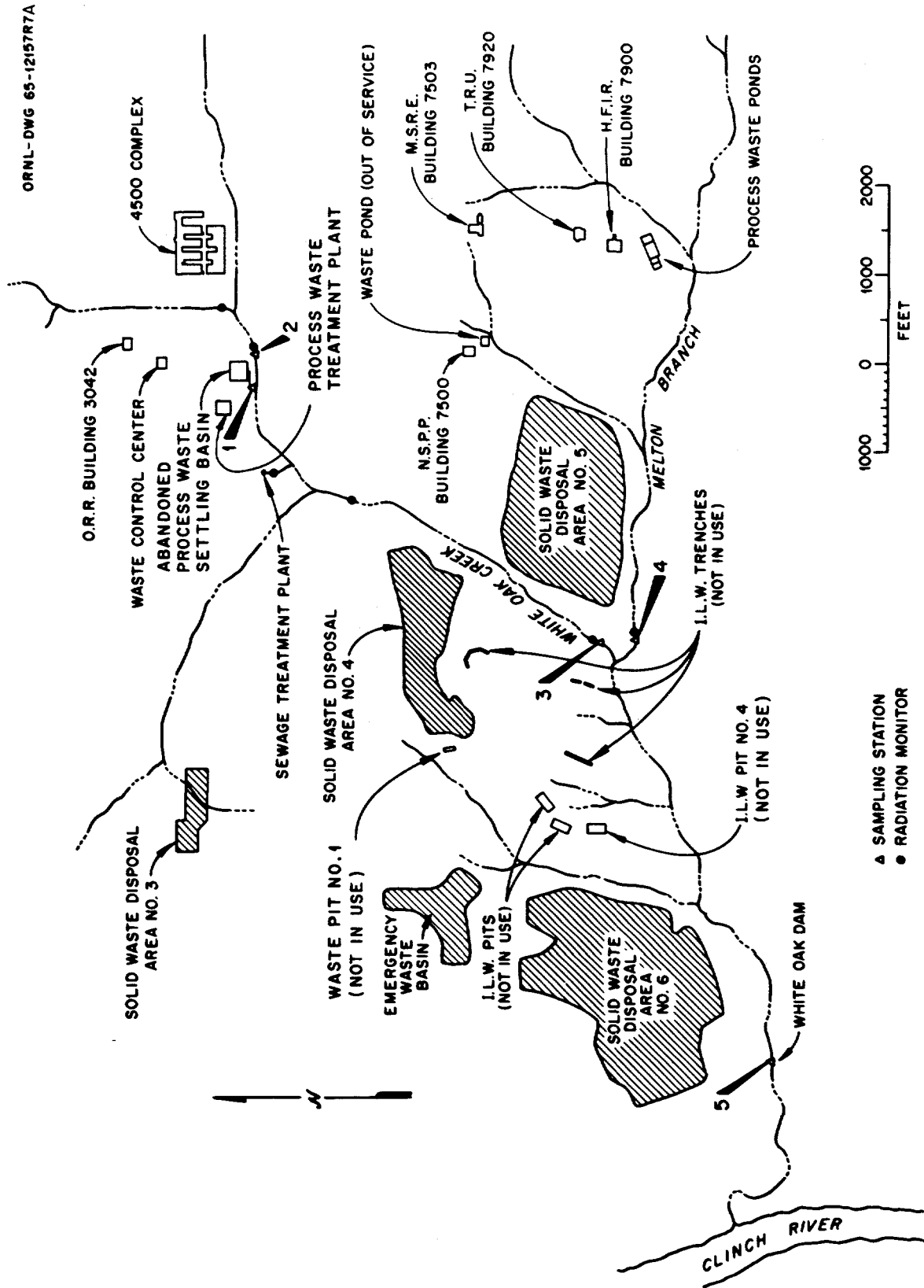


Fig. 6. Solid-waste disposal areas and water-sampling stations at ORNL.

Table 8. Operational status of ORNL radioactive solid-waste storage area

SRWDA	Operating dates	Status	Land used (acres) ^a
1	1943-1944	Closed	1
2	1944-1946	Closed	4
3	1946-1951	Closed	7
4	1951-1959	Closed	23
5	1959	Operating	33
6	1969	Operating	68

^a1 acre = 4047 m².

During August 1977, 13 core samples were collected at various points in SRWDA 2. Water samples were also collected from the core holes. Activity levels in water samples were not significantly different from background samples when analyzed for ³H, gross alpha, and gross beta activity. A representative portion of the homogenized whole core was used for this analysis. The average uranium and plutonium concentrations were 0.45 pCi/g (0.017 Bq/g) and 0.06 pCi/g (0.002 Bq/g), respectively (Oakes and Shank 1977). The average radionuclide concentration for soil samples near the perimeter of the Department of Energy (DOE) area in Oak Ridge contained 0.66 pCi/g (0.024 Bq/g) of uranium and 0.04 pCi/g (0.0015 Bq/g) of plutonium (Oakes, Shank, and Easterly 1976).

The average ¹³⁷Cs concentration for the upper third and the entire core was measured at 0.7 and 0.3 pCi/g (0.026 and 0.011 Bq/g), respectively. Both of these values were substantially lower than the value of 1.0 pCi/g (0.037 Bq/g), the average value of samples of topsoil collected in 1976 from 16 sites throughout eastern and central Tennessee (Oakes, Shank, and Easterly 1976). These soil samples were from cores several feet long and were being compared with topsoil samples. For ⁹⁰Sr, the average values for the cores were 0.57 and 0.53 pCi/g (0.021 and 0.20 Bq/g) for the upper third and the entire core, respectively (Oakes, Shank, and Easterly 1976).

3.3 SRWDA 3

SRWDA 3 is about 0.6 mile (11.0 km) west of the west entrance to the Laboratory complex. The site is a flat, forested area at the foot of Haw Ridge. Presumably, SRWDA 3 was chosen because of its proximity to the Laboratory, out-of-sight location, and soil that could be readily excavated (Webster 1976). The area became operational in 1946. Alpha-contaminated wastes were dumped in unlined trenches and covered with concrete, whereas the beta-gamma waste was covered with native soil.

Samples of well water from the area were analyzed in 1964 and indicated small amounts of the TRE, ⁹⁰Sr, ⁸⁹Sr, and ³H (Webster 1976). Well samples were also collected in 1973, and analyses indicated ⁹⁰Sr levels as high as 3.0 dpm/mL (50 Bq/L). Soil samples were collected and analyzed during 1978, and the results are given in Eldridge et al. (1979). The results were higher than natural soil background level (Oakes, Shank, and Easterly 1976).

3.4 SRWDA 4

Between 1948 and 1950, a study (Stockdale 1951) of the geology and hydrology of the Laboratory site was conducted. Disposal of waste in the Conasauga shale belt was recommended. SRWDA 4 was opened in 1951 in the closest area to the Laboratory underlain by Conasauga shale. Trench orientation was variable and lacked any consistent relationship to original site topography (Webster 1976). Auger holes 1 to 2 ft (0.3 to 0.6 m) in diameter were used in this area for the disposal of higher-level radioactive waste [>200 mrem/h (>2 mSv/h) at surface]. The total disposal area of the site when it was closed in 1959 covered 23 acres (9.3×10^4 m²).

A number of small seeps developed near the rim of the terrace in the center third of the area, and others were reported to have developed in the central part of the site. During 1959 and 1960, sampling of wells and streams in and near this area indicated that both groundwater and surface water were contaminated (Webster 1976). Eight of the 16 wells showed beta-gamma contamination. Water samples from two seeps indicated contamination of ⁹⁰Sr, ¹³⁷Cs, ⁹⁵Zr-⁹⁵Nb, ⁶⁰Co, and TRE. The section of WOC flowing by SRWDA 4 indicated radioactive contaminants of ¹⁰⁶Ru, ⁹⁰Sr, ²¹⁰Po, ²³⁹Pu, and TRE. In 1964, water samples were collected from six wells and one seep, and each sample was found to contain ⁸⁹Sr, ³H, TRE, and minor amounts of ¹⁰⁶Ru (Webster 1976). Discharges of ⁹⁰Sr from SRWDA 4 vs precipitation are given in Table 9.

Table 9. Strontium-90 discharges from SRWDA 4 vs precipitation

Water year ^a	Precipitation (cm)	Total ⁹⁰ Sr discharge (Ci) ^b
1967	154	2.7
1968	114	2.0
1969	102	2.1
1970	122	1.6
1971	123	1.2
1972	120	2.4
1973	181	1.6
1974	175	5.2
1975	147	3.2
1976	124	5.1
1977	129	2.3
1978	155	1.4
1979	169	1.7
1980	97	0.9

^aMeasurements for these years were taken from September 1 through August 31.

^bTo convert from curies (Ci) to becquerels (Bq), multiply curies by 3.7×10^{10} .

Source: Stueber et al. 1978.

Soil samples were collected in 1973 along the south side of SRWDA 4. These samples contained small amounts of ^{60}Co , ^{137}Cs , and ^{90}Sr (Duguid 1976). The soil along WOC east of the area has been contaminated by seepage from SRWDA 4 and discharges of the creek. Near this site is a contaminated floodplain area, which was once flooded by an intermediate pond. A dam was constructed in early 1944 to help create an intermediate retention pond between the Laboratory and White Oak Lake. The dam was breached in late 1944, and a small pond remained until 1950 (Duguid 1976). Results of analyses of soil and sediment are given in the section on floodplains.

3.5 SRWDA 5

SRWDA 5 opened in 1959 and consisted of two sections on the hillside east of WOC and south of Haw Ridge. This area was opened because space in SRWDA 4 was approaching exhaustion. Initially, the same burial procedures were used at this site as had been used at the preceding sites; that is, alpha-contaminated waste was placed in the lower part of the area and capped with concrete, and the beta-gamma-contaminated waste was simply covered with weathered shale. This segregation procedure was discontinued sometime during the operational life of the site. Trenches for burial vary in lengths from <40 ft (12 m) to >300 ft (91 m). The trenches were oriented parallel to the topographic slopes (Webster 1976).

Water samples from several wells were collected in 1964. The principal contaminants found were ^{90}Sr , ^{89}Sr , ^{106}Ru , ^3H , and TRE. Several new wells were cored and sampled. The data suggested that at the time, only minor movement of radioactivity had occurred. In 1960, samples from the wells indicated that SRWDA 5 was the major source of ^3H (Webster 1976) in WOC.

Most of the transport of radionuclides in the surface water was monitored at Station 4 on Melton Branch. Additional data are given in the section on monitoring stations. In 1974, 13 small seeps were sampled along the south edge of the area. These samples contained measurable amounts of total alpha, ^{90}Sr , ^3H , and ^{125}Sb . Eleven of the samples contained concentrations of ^{90}Sr ranging from 9×10^{-8} to 6.1×10^{-5} mCi/ml (3.3×10^3 to 2.3×10^6 Bq/L) (Duguid 1976).

3.6 SRWDA 6

SRWDA 6 is located immediately northwest of White Oak Lake. This site is about 70 acres ($2.8 \times 10^5 \text{ m}^2$) and was opened in 1969. Trenches initially were excavated to greater than 300 ft (91 m) but are now limited to a length of about 50 ft (15 m). This procedure was initiated to reduce the collection of water in the trenches to an acceptable level (Webster 1976). Some monitoring around this area has been completed. The results indicate some movement of radioactivity, but it is too early to determine the significance of the results.

3.7 Floodplain Areas

Four floodplain areas on the site are contaminated. For purposes of this paper, only the floodplain established by the construction of the dam in 1944 will be discussed.

During 1974, a study of the ^{137}Cs distribution in soil, roots, ground vegetation, overstory, litter, mammals, flies, and insects from the 5-acre (20,000- m^2) floodplain area was made (Van Voris and Dahlman 1976). The highest concentration found in soil was 84,400 pCi/g (3120 Bq/g). All ^{137}Cs concentrations below the 6.7-in. (17-cm) depth, outside the floodplain area, were equal to background. Concentrations in the roots ranged as high as 12,500 pCi/g (463 Bq/g).

3.8 Waste Ponds

Other sources of radioactive discharges as a result of past waste treatment and disposal procedures are the waste ponds. Three waste ponds have been in use at ORNL. An example of the activity in these ponds is from a study in 1977 (Tamura, Sealand, and Duguid) of Waste Pond 2. This study indicated approximately 5 Ci (1.9×10^{11} Bq) of ^{239}Pu , 200 Ci (7.4×10^{12} Bq) of ^{137}Cs , and 33 Ci (1.2×10^{12} Bq) of ^{90}Sr in the bottom sediment.

3.9 Intermediate-Level Waste Pits

Another source of discharged waste is the Intermediate-Level Waste Pits (Fig. 6). In 1951, the construction of pits for disposal of intermediate-level liquid was begun. The first pit was opened in 1951 and immediately closed because of its poor location. The second pit was opened in 1952, and large quantities of intermediate-level waste were disposed of for the first time. Pits 3 and 4 became operational in 1955 and 1956, respectively. Trenches 5, 6, and 7 were opened between 1960 and 1962. These trenches were taken out of routine service in 1965 as part of a plan to implement disposal of intermediate-level waste by hydrofracture (Duguid 1976).

Small amounts of ^{90}Sr and ^{137}Cs have been observed in seepage from trenches 6 and 7. The major seepage problem in the past was with ^{106}Ru as indicated in Table 10.

Table 10. Annual discharges of ^{106}Ru to the Clinch River

Year	Ci ^a	Year	Ci
1959	520	1965	69
1960	1900	1966	29
1961	2000	1967	17
1962	1400	1968	5
1963	430	1969	2
1964	191	1970	1

^aTo convert curies (Ci) to becquerels (Bq), multiply curies by 3.7×10^{10} .

4. WATER SAMPLING

Low-level radioactive liquid wastes originating from ORNL operations are discharged, after preliminary treatment, to WOC and Melton Branch, which are small tributaries of the Clinch River. The radioactive content of the WOC discharge is determined at WOC stations 1, 2, and 3, at Melton Branch station 4, and at WOD station 5, which is the last control point along the stream before the entry of WOC into the Clinch River. Stations MS-2, MS-2A, MS-4A, MS-4B, East Seep Monitor, and West Seep Monitor were installed to more clearly determine the specific discharge sources (Fig. 6).

Samples are also collected at several locations in the Clinch River and one location on the Tennessee River, beginning at a point above the entry of the wastes into the river and ending at the Kingston Water Plant at Kingston, Tennessee, the nearest population center downstream (Fig. 7).

4.1 Station 1

At WOC station 1, the effluent from the ORNL Process Waste Treatment Plant is monitored.

4.2 Station 2

Station 2 is located on WOC a short distance upstream from station 1 and provides data on radionuclide content from operational discharges above the Process Waste Treatment Plant.

4.3 Station 3

Water monitoring station 3 is located on WOC a short distance above the confluence of WOC and Melton Branch. At this station the streamflow is measured and the radionuclide content from the ORNL plant effluents is determined. Seepage from SRWDAs 1, 2, 3, 4, and a portion of 5 as well as contaminated floodplain sediments and other potential sources are monitored.

4.4 Station 4

Station 4 is located on Melton Branch, a short distance above the confluence with WOC. Streamflow and radionuclide content from SRWDA 5, several experimental reactor sites, and other areas are measured.

4.5 Station 5

Station 5 is located at WOD. Samples of WOC effluent are collected at WOD by a continuous proportional sampler, which was designed and constructed at ORNL. Proportional sampling is necessary to obtain a truly representative sample, since streamflow and concentration of radioactive materials in the stream may vary independently over a relatively wide range in a relatively short time, depending on weather and operating conditions. Streamflow at WOD is measured by a Stevens water-level recorder and a stilling well in the lake pool in conjunction with the WOD gate, which serves as a rectangular weir through which the water flows (Oakes and Shank 1978).

Samples are collected weekly from WOD and analyzed for gross beta activity as a control measure and as a means of evaluating the gross concentration of radioactivity entering the Clinch River. Portions of the weekly samples are composited, proportional to the flow, into monthly

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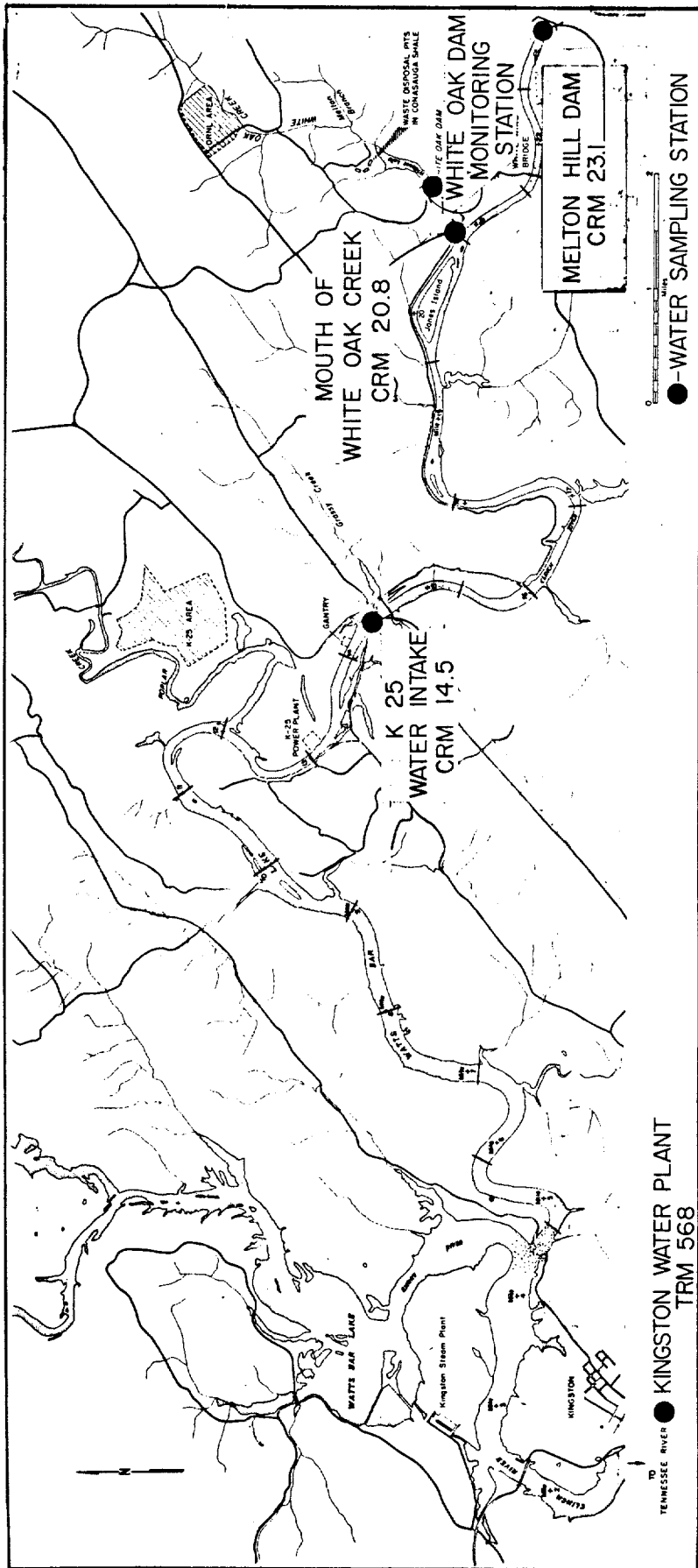


Fig. 7. Water-monitoring locations in the Clinch River.

samples that are subjected to more detailed analyses by wet chemical and gamma spectrometric techniques. The weekly samples are analyzed for the transuranic alpha emitters, ^{90}Sr , and ^{131}I , which represent the elements in the waste stream with the highest hazard indices.

The monthly composites are concentrated and analyzed by radiochemical and gamma spectrometric techniques, usually for the following radionuclides: ^{90}Sr , ^{137}Cs , ^{131}I , ^{106}Ru , ^{60}Co , ^3H , transuranics, and gross beta activity. Analyses for other nuclides are performed as the need arises. The analyses are performed to determine the percentage distribution and concentrations of the various nuclides in the effluent stream and to calculate the quantity of each radionuclide released into the Clinch River. More frequent analyses are made if concentration levels in WOC vary significantly from the experienced norm.

Calculations are made of the concentrations of radioactivity in the Clinch River using the concentrations measured at WOD and the dilution provided by the river. The calculations are based on uniform mixing of the two streams within a short distance downstream from the point of entry of the wastes. The calculated concentration of each radionuclide in the river is compared with its respective CG_w value as specified by DOE Order 5480.1, Chapter XI, and the resulting fractions are summed to arrive at the percent CG_w in the Clinch River.

The annual discharges and total amount of radionuclides to the Clinch River as measured at WOD from 1949 to 1981 are given in Table 11. The measured percent CG_w at WOD and the calculated percent CG_w in the Clinch River from 1977 to 1981 are given in Figs. 8 and 9, respectively. The amount of ^3H released into the river in three-year periods from 1965 to 1977 is given in Fig. 10.

As a follow-up to the calculation of concentrations, sampling stations are maintained in the Clinch River and Tennessee River below the point of entry of the White Oak discharge: one at the Oak Ridge Gaseous Diffusion Plant (ORGDP) water intake (CRM 14.5) and the other at the Kingston Water Plant at Kingston, Tennessee. In addition, a sampling station is maintained at Melton Hill Dam (CRM 23.1) in the Clinch River above the point of entry of the waste to provide background data.

4.6 Station MS-2

This station is located on the eastern end of the WOC watershed. Data from this station are used to help identify releases originating from the area of Bldg. 4500, the area of Bldg. 6000, and the Oak Ridge Reactor (ORR) area.

4.7 Station MS-2A

Station MS-2A is used to help identify releases into Northwest Tributary from the Bldg. 1500 complex and Waste Disposal Area 3. The data from this station combined with data from other stations are also used to identify releases from the Sewage Treatment Plant, waste treatment plant, and ponds in the area to WOC.

4.8 Station MS-4A

Station MS-4A is used to identify discharges into Melton Branch from the High Flux Isotope Reactor (HFIR), the Transuranium (TRU) processing facility, and their associated holding basins.

Table 11. Annual discharges and total discharges of radionuclides to the Clinch River, 1949 to 1981

Year	¹³⁷ Cs	¹⁰⁶ Ru	⁸⁹ Sr	⁹⁰ Sr	TRE ^a (-Ce)	¹⁴⁴ Ce	⁹⁵ Zr	⁹⁵ Nb	¹³¹ I	⁶⁰ Co	³ H	TRU ^c
1949	77	110		150	77	18	180	22	77		NA ^d	0.009 (from 8/12/49)
1950	19	23		38	30	NA	15	42	19			0.04
1951	20	18		29	11	NA	5	2	18			0.08
1952	10	15		72	26	23	19	18	20			0.03
1953	6	26		130	110	7	8	4	2			0.08
1954	22	11		140	160	24	14	9	4	NA		0.07
1955	63	31		93	150	85	5	6	7	7		0.25
1956	170	29		100	140	59	12	15	4	46		0.28
1957	89	60		83	110	13	23	7	1	5		0.15
1958	55	42	NA	150	240	30	6	6	8	9		0.08
1959	76	520	0.3	60	94	48	27	30	1	77		0.68
1960	31	1900	1.9	28	48	27	38	45	5	72		0.19
1961	15	2000	2.0	22	24	4	20	70	4	31		0.07
1962	6	1400	1.7	9	11	1	2	8	0.4	14		0.06
1963	4	430	1.0	8	9	2	0.3	0.7	0.4	14		0.17
1964	6	191	0.8	7	13	0.3	0.2	0.1	0.3	15	1930	0.08
1965	2	69	0.6	3	6	0.1	0.3	0.3	0.2	12	1160	0.50
1966	2	29	0.9	3	5	0.1	0.7	0.7	0.2	7	3090	0.16
1967	3	17	0.7	5	9	0.2	0.5	0.5	0.9	3	13,300	1.03
1968	1	5	0.6	3	4	0.03	0.3	0.3	0.3	1	9690	0.04
1969	1	2	0.3	3.1	5	0.02	0.2	0.2	0.5	1	12,200	0.20
1970	2	1	0.3	3.9	5	0.06	0.02	0.02	0.3	1	9470	0.40
1971	1	0.5	0.2	3.4	3	0.05	0.01	0.01	0.2	1	8950	0.05
1972	2	0.5	NA ^d	6.5	5	0.03	0.01	0.01	0.3	1	10,600	0.07
1973	2	0.7		6.7	NA	0.02	0.05	0.05	0.5	1	15,000	0.08
1974	1	0.2		6.0		0.02	0.02	0.02	0.2	0.6	8630	0.02
1975	0.6	0.3		7.2		NA	NA	NA	0.3	0.5	11,100	0.02
1976	0.2	0.2		4.5					0.03	0.9	7420	0.01
1977	0.2	0.2		2.7					0.03	0.4	6250	0.03
1978	0.3	0.2		2.0					0.04	0.4	6290	0.03
1979	0.2	0.1		2.4					0.04	0.4	7700	0.03
1980	0.6	0.0		1.5					0.04	0.4	4554	0.04
1981	0.2	0.1		1.5					0.04	0.4	2876	0.04
Total	688	6932	11.3	1184	1295	342	375	287	175	322	140,210	5.07

^aTo convert curies (Ci) to becquerels (Bq) multiply curies by 3.7×10^{10} .

^bTotal rare earths minus cerium.

^cTransuranium nuclides.

^dNo analysis performed.

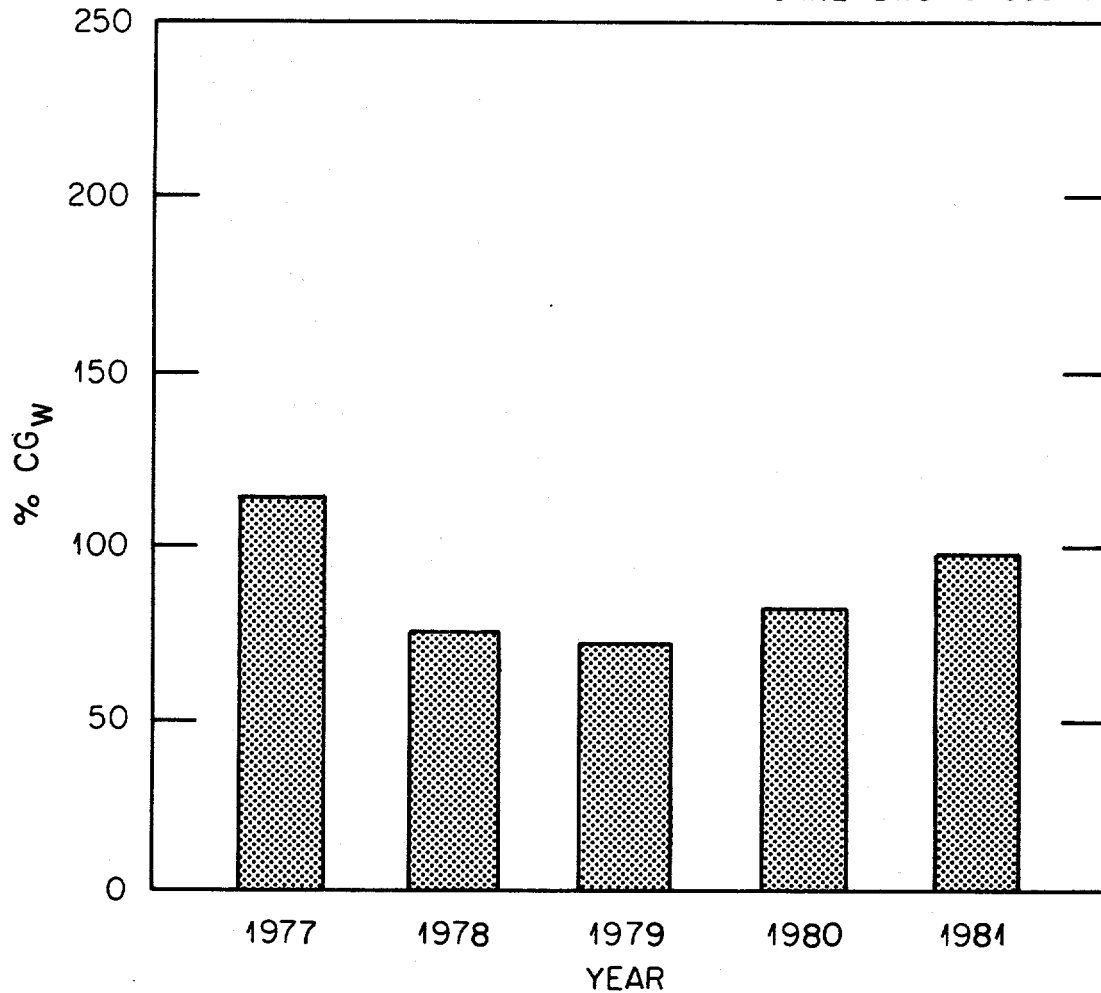


Fig. 8. Percent of CG_w total over White Oak Dam.

4.9 Station MS-4B

Station MS-4B is used to help identify releases into Melton Branch from the Homogeneous Reactor Experiment (HRE) area, the Bldg. 7500 area, and the Molten Salt Reactor Experiment (MSRE) area.

4.10 East Seep Monitor

Data from this station are used to determine how much radioactivity is leaking from pits and trenches into WOC.

4.11 West Seep Monitor

This station is used to determine the discharges from Waste Pit 1 and other waste disposal areas.

ORNL-DWG 79-8860AR3

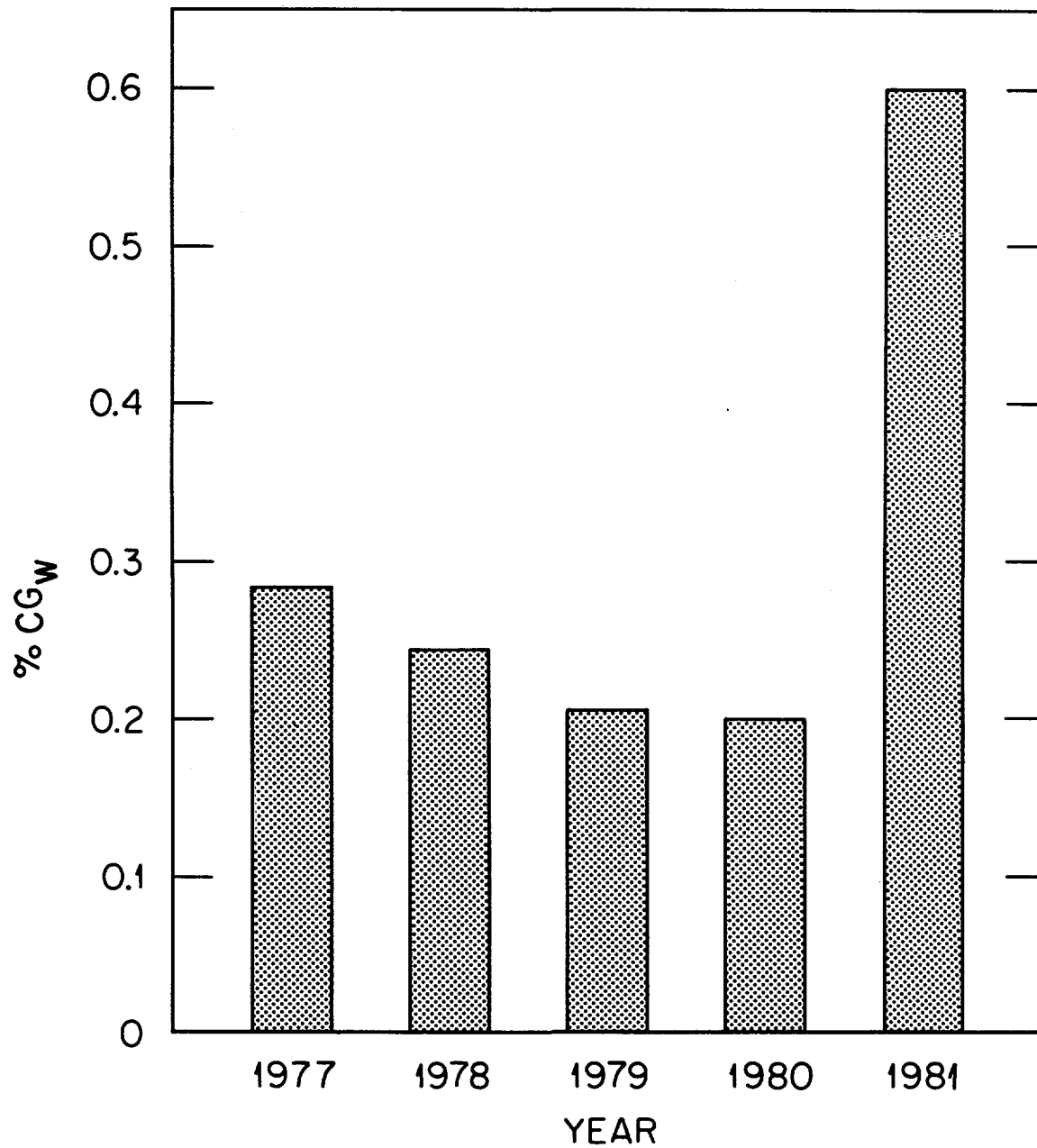


Fig. 9. Percent of CG_w total for dilution calculation in the Clinch River.

4.12 ORGDP Water Intake Sampling Station

The ORGDP water sampling station, which was designed and constructed at ORNL, has an automatic sampler that collects a sample from the Clinch River in proportion to the flow in the river near the water intake of the ORGDP plant water system (the first point of Clinch River water

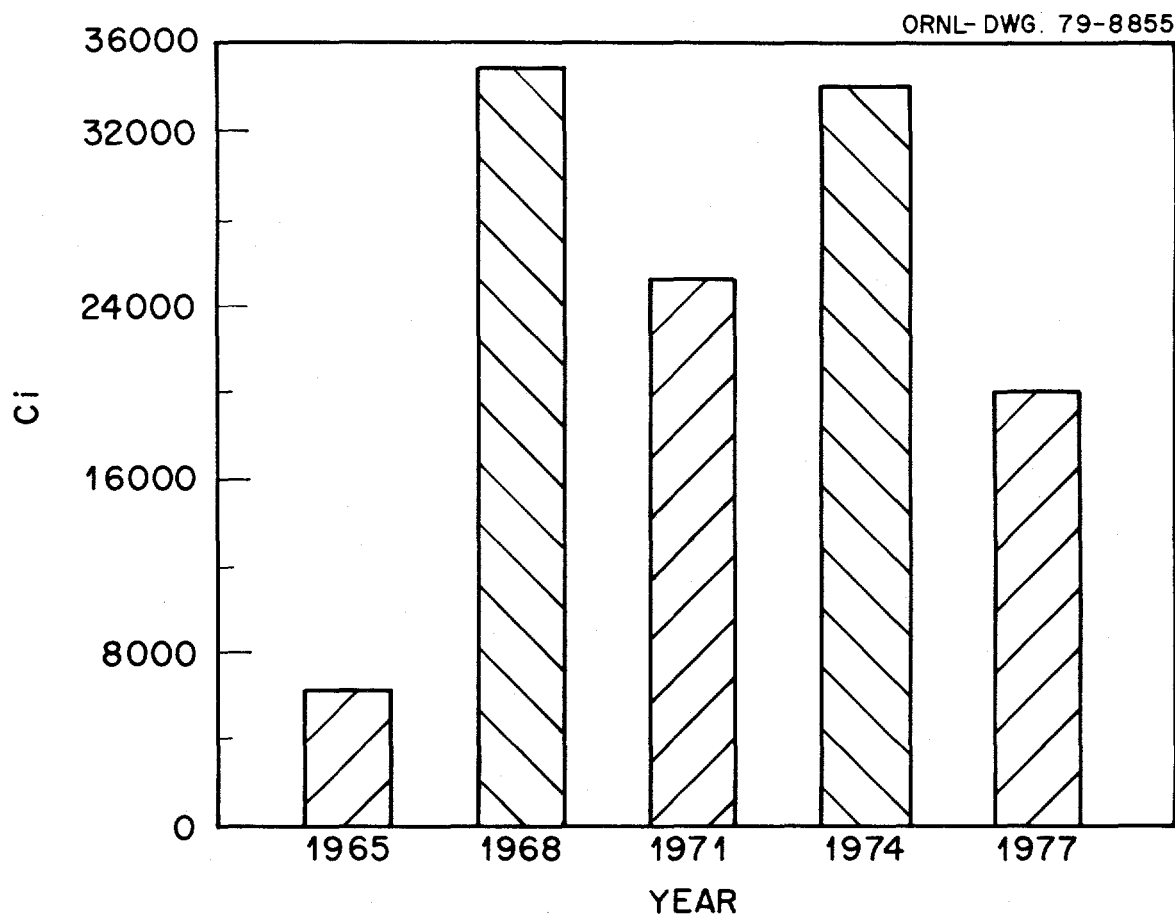


Fig. 10. Tritium releases to the Clinch River (three-year intervals).

usage downstream from the point of entry of the ORNL discharge). The ORGDP sampling station was established for several reasons: (1) to provide data relative to the concentrations of radioactivity in water taken from the Clinch River for normal treatment plant usage; (2) to provide an index of the hazard to the ORGDP population as the first user of Clinch River water downstream from the point of entry of the ORNL discharge; and (3) to provide data for comparison with the concentrations in the Clinch River calculated from WOD releases and the dilution provided by the river.

The samples are brought into the Laboratory at weekly intervals, acidified, and combined into quarterly composite samples for analysis. The quarterly composite samples are concentrated by evaporation and analyzed by wet chemical and gamma spectrometric techniques for gross activity (alpha and beta) and for ^{90}Sr , ^3H , and gamma emitters. The total percent CG_w for the mixture is calculated from the concentrations measured. The CG_w percent at the ORGDP sampling station from 1974 to 1978 is given in Fig. 11.

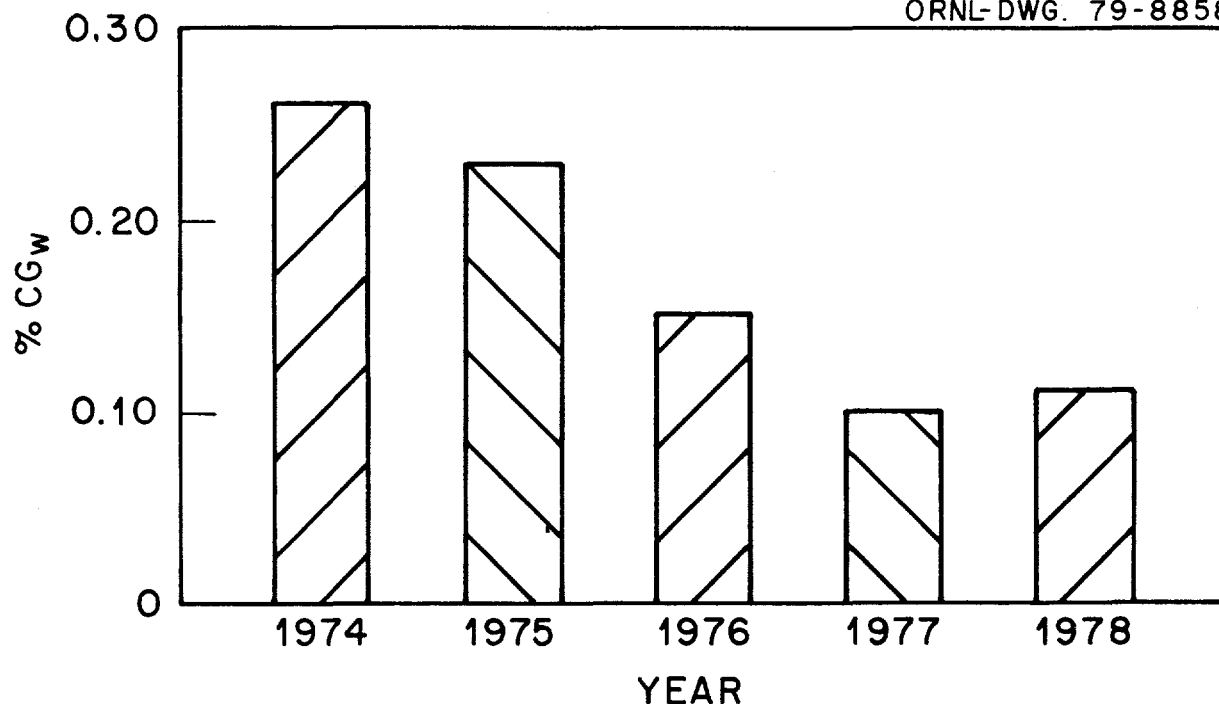


Fig. 11: Percent of CG_w total at the ORGDP intake.

4.13 Center's Ferry Sampling Station

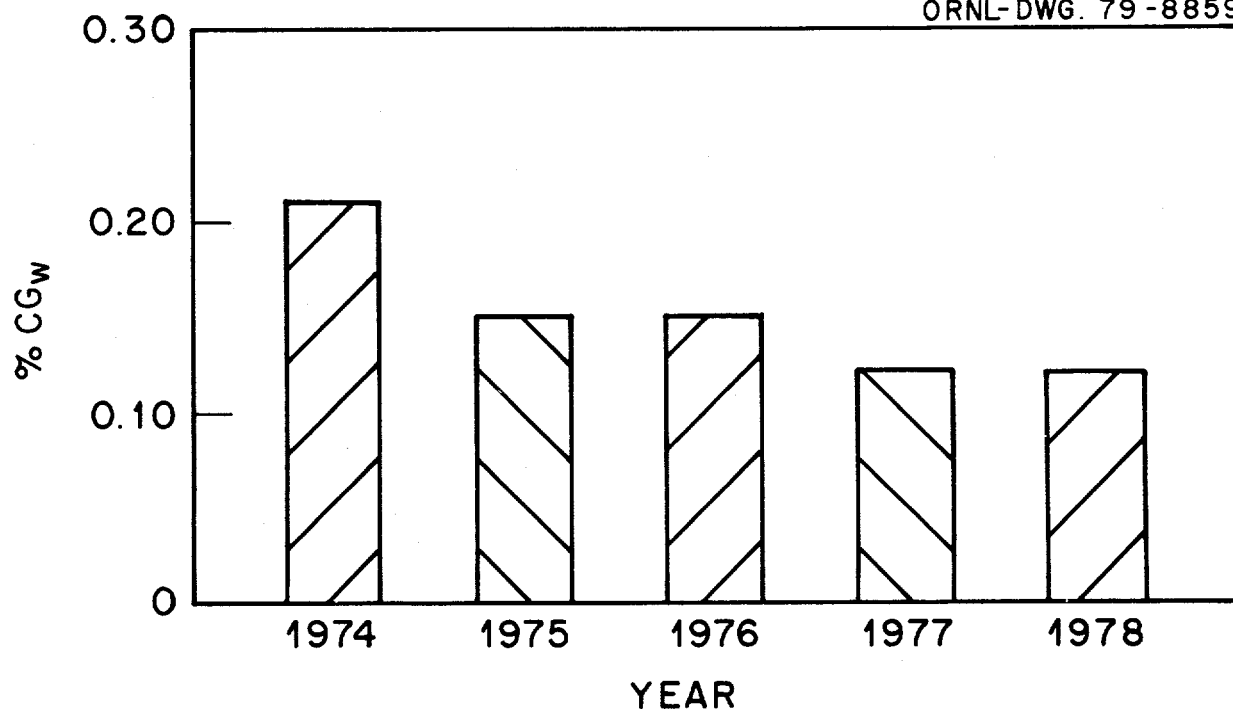
Until 1980, a grab sample was collected daily at the Center's Ferry sampling station, which was located on the Clinch River at CRM 4.5. Thermal stratification exists at this location, with the cold water of the Clinch River running under the warmer backwater of the Watts Bar Reservoir. The sample was collected 25 ft (7.6 m) below the surface of the water to ensure that Clinch River water was collected in the sample. Fluctuations in concentration at this location are relatively small because the distance downstream from the point of entry of the discharge and dispersion of radioactivity in the Clinch River water is complete; thus, a grab sample is considered adequate. The daily grab samples were composited, acidified, and analyzed on a quarterly basis. The preparation of the sample and the analyses performed were the same as those used at the ORGDP water sampling station.

Samples from the Center's Ferry Sampling Station provided data relative to the average concentration of radioactive materials in the Clinch River at the nearest population center (Kingston, Tennessee) downstream from the point of entry of the ORNL discharge. The percent CG_w from 1976 to 1978 is given in Fig. 12. A comparison of the calculated percent CG_w at ORGDP and Center's Ferry is in Table 12.

In 1980, the Center's Ferry Sampling Station was replaced with a new sampling station at the Kingston Water Plant on the Tennessee River near the confluence with the Clinch River.

4.14 Melton Hill Dam Sampling Station

Samples collected at the Melton Hill Dam sampling station (located at CRM 23.1) are proportional to the flow of water through the power-generating turbine, which represents all of the

Fig. 12. Percent of CG_w total at Kingston, Tennessee.Table 12. Total percent CG_w in the Clinch River

Year	ORGDP	Center's Ferry	Calculated Clinch River ^a
1974	0.26	0.21	0.36
1975	0.23	0.15	0.49
1976	0.15	0.15	0.51
1977	0.10	0.12	0.28
1978	0.11	0.12	0.24

^aCalculated concentrations in Clinch River using dilution factors and measured concentrations from White Oak Dam.

discharge from the dam other than a minor amount discharged in the operation of the lock. The sampler was designed and constructed at ORNL and is located on the lower side of the dam, with the intake positioned at the tail race of the turbines. The sampler is keyed to the turbine operation so that a sample is collected only when the turbines are operating, even though water from the tail race is continuously pumped through the sampling lines. Samples are collected from the station at weekly intervals, acidified, and composited for a quarterly period in polyethylene containers. The quarterly sample is processed and analyzed in the same manner as for the ORGDP water sampling station.

In addition to meeting routine monitoring requirements, water monitoring aids in the detection of abnormalities. For example, in 1969, high levels of ^{60}Co were detected in the water at Melton Hill (CRM 23.1). River silt was then analyzed and found to contain approximately 16 pCi/g (0.59 Bq/g) of ^{60}Co above Melton Hill. Concentration below ORNL discharges was 1.2 pCi/g (0.044 Bq/g) (CRM 19.1). The investigation resulted in finding a waste-tank leak at the American Nuclear Corporation facility located at about CRM 51.

5. WHITE OAK CREEK SEDIMENT DATA 1978-1979

5.1 Radioactivity in the Clinch River Sediments

5.1.1 White Oak Lake samples, 1979

To arrive at an accurate assessment of the radioactivity present in White Oak Lake, sediment samples were taken in December 1979 (Oakes et al. 1982). The locations chosen are shown in Fig. 13; samples were taken near the dam since it was postulated that this location posed the greatest potential for release to the public. The cores were divided in 1-in. (2.5-cm) segments so that a depth profile could be performed. To expedite the analyses, only the top 6 in. (15 cm) was initially analyzed. The average values for the cores are presented in Table 13. Transuranic analyses will be performed at a later date. The data for these cores are given in Tables 14-16.

When assessing the data, we noted that ^{60}Co decreased with depth; ^{137}Cs increased with depths up to 6 in. (15 cm); ^{90}Sr remained relatively constant with depth; and ^{152}Eu and ^{154}Eu decreased below 4 in. (10 cm).

These values can be compared to soil samples taken during 1978 at perimeter air-monitoring stations; however, care must be exercised in comparing these numbers because the perimeter values are for only the top 1 in. (2.5 cm) and are reported as dry weight. Average perimeter values were ^{90}Sr , 0.6 pCi/g (0.02 Bq/g) and ^{137}Cs , 0.4 pCi/g (0.01 Bq/g); ^{60}Co and europium were not detectable. The minimum detectable activity for ^{60}Co and $^{152-154}\text{Eu}$ is 0.1 to 0.5 pCi/g (4 to 19 mBq/g) depending on the chosen counting interval.

5.1.2 White Oak Creek below WOD sediment samples, 1978-1979

The sediment immediately downstream of WOD [White Oak Creek mile 0-0.6 (WOC km 0-0.1)] was sampled during 1978-1979, and the samples were analyzed by high-resolution gamma-ray spectroscopy. The sampling locations are indicated on Fig. 14. Cores were prepared by extracting the moist soil in 1-in. (2.5-cm) increments directly into a plastic dish, 2.8-in. (7.1-cm) diameter by 1.1-in. (2.8-cm) height. Total results are presented in units of Bq/g wet weight in Table 17. The data for the first 15 in. (43 cm) of all cores are presented in Figs. 15 and 16 for ^{137}Cs and ^{60}Co . Core 23 was singled out for a separate presentation in Figs. 17 and 18. This core was taken at the first sharp bend in the creek below WOD (see Fig. 14). The sediment buildup is interesting because the highest concentrations were 26 in. (66 cm) below the surface; a concentration of 60,700 pCi/g (2250 Bq/g) for ^{137}Cs was observed (Oakes et al. 1982).

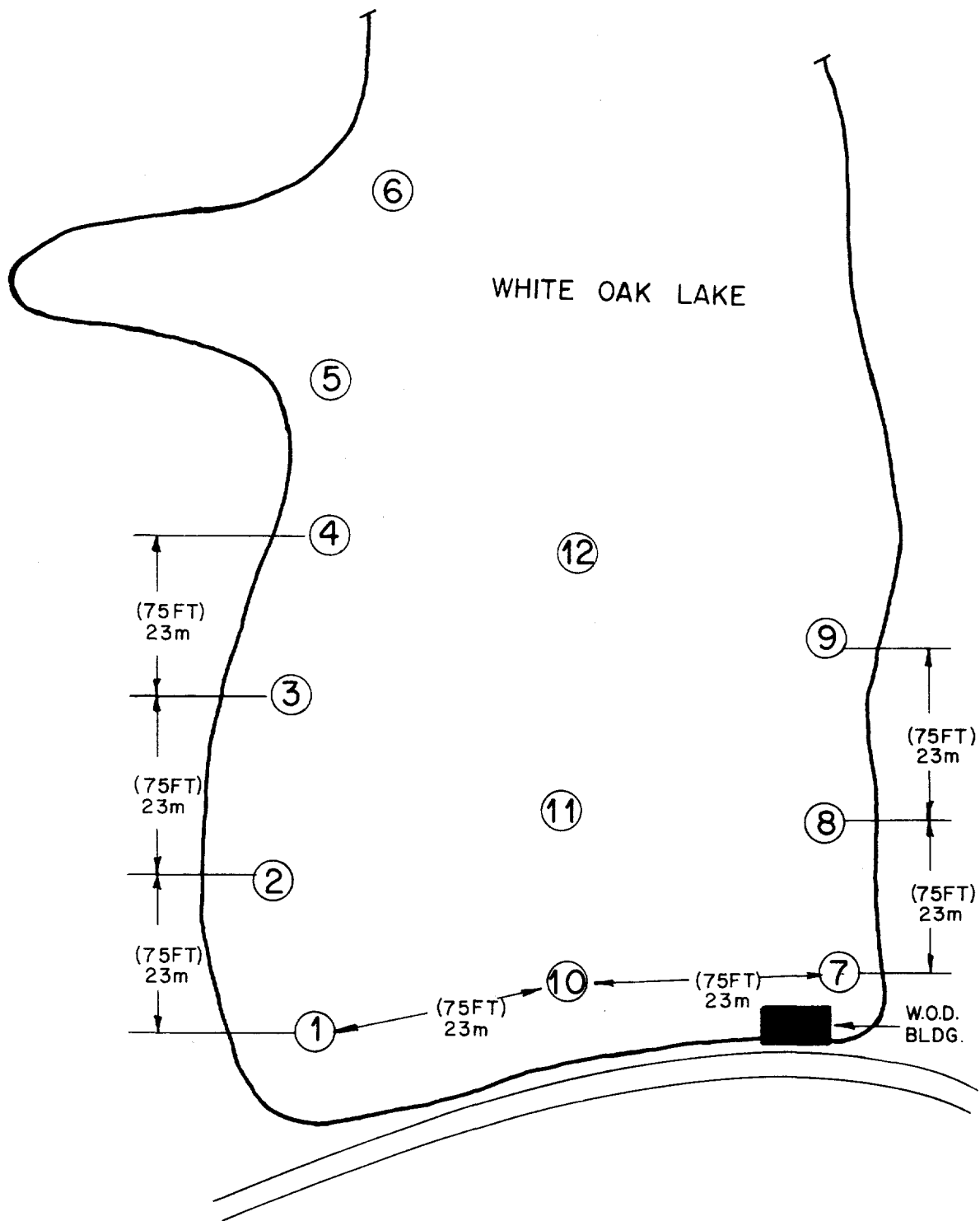


Fig. 13. Map of White Oak Lake showing sampling locations, 1979.

Table 13. Sediment data (pCi/g wet),
White Oak Lake, 1979

Core sample	$^{60}\text{Co}^a$	$^{137}\text{Cs}^a$	$^{152,154}\text{Eu}^{a,b}$	$^{90}\text{Sr}^c$
1	123	617	16	37
2	131	447	11	39
3	87	420	6	32
4	76	348	10	29
5	108	545	10	85
6	66	377	12	32
7	94	328	16	28
8	58	133	10	29
9	104	339	12	55
10	110	725	18	38
11	93	722	18	33
12	96	701	20	55
Average	96	475	13	41

^aAverage of six 1-in. (2.5-cm) segments.

^bEu-154 is approximately 1.4 times the ^{152}Eu concentration.

^cAverage of top 1-in. (2.5-cm) segment and bottom 1-in. (2.5-cm) segment.

Table 14. Cesium-137 concentration in White Oak Lake cores, 1979

[pCi/g (Bq/g)]

Core number	Depth (cm)					
	0-2.5	2.5-5.0	5.0-7.5	7.5-10.0	10.0-12.5	12.5-15.0
1	439 (16.2)	489 (18.1)	580 (21.5)	617 (22.8)	763 (28.2)	814 (30.1)
2	363 (13.4)	409 (15.1)	474 (17.5)	482 (17.8)	495 (18.3)	458 (16.9)
3	292 (10.8)	319 (11.8)	308 (11.4)	330 (12.2)	499 (18.5)	769 (28.5)
4	365 (13.5)	472 (17.5)	442 (16.4)	501 (18.5)	274 (10.1)	57.7 (2.1)
5	420 (15.5)	440 (16.3)	443 (16.4)	521 (19.3)	692 (25.6)	754 (27.9)
6	372 (13.8)	360 (13.3)	364 (13.5)	383 (14.2)	371 (13.7)	410 (15.2)
7	506 (18.7)	465 (17.2)	454 (16.8)	384 (14.2)	129 (4.8)	31.3 (1.2)
8	280 (10.4)	211 (7.8)	165 (6.1)	77 (2.8)	44 (1.6)	22 (0.8)
9	256 (9.5)	309 (11.4)	275 (10.2)	377 (13.9)	402 (14.9)	415 (15.4)
10	492 (18.2)	595 (22.0)	700 (25.9)	805 (29.8)	862 (31.9)	895 (33.1)
11	497 (18.4)	627 (23.2)	754 (27.9)	816 (30.2)	816 (30.2)	824 (30.5)
12	481 (17.8)	624 (23.1)	735 (27.2)	773 (28.6)	754 (27.9)	838 (31.0)

Table 15. Cobalt-60 concentration in White Oak Lake cores, 1979

[pCi/g (Bq/g)]

Core number	Depth (cm)					
	0-2.5	2.5-5.0	5.0-7.5	7.5-10.0	10.0-12.5	12.5-15.0
1	157 (5.8)	138 (5.1)	134 (5.0)	111 (4.1)	105 (3.9)	95.4 (3.5)
2	156 (5.8)	137 (5.1)	141 (5.2)	130 (4.8)	117 (4.3)	102 (3.8)
3	104 (3.9)	77 (2.9)	79 (2.9)	79 (2.9)	83 (3.1)	102 (3.8)
4	124 (4.6)	119 (4.4)	87 (3.2)	84 (3.1)	32.4 (1.2)	9.1 (0.3)
5	111 (4.1)	106 (3.9)	92.8 (3.4)	106 (3.9)	114 (4.2)	117 (4.3)
6	74.5 (2.8)	74.7 (2.8)	72.0 (2.7)	60.4 (2.2)	55.8 (2.1)	57.5 (2.1)
7	118 (4.4)	104 (3.9)	124 (4.6)	134 (5.0)	63.4 (2.4)	23.0 (0.9)
8	153 (5.7)	85.3 (3.2)	53.9 (2.0)	26.7 (1.0)	18.6 (0.7)	8.9 (0.3)
9	197 (7.3)	144 (5.3)	79.8 (3.0)	65.6 (2.4)	69.3 (2.6)	68.9 (2.6)
10	157 (5.8)	119 (4.4)	100 (3.7)	103 (3.8)	100 (3.7)	81.1 (3.0)
11	122 (4.5)	86.5 (3.2)	83.8 (3.1)	89.2 (3.3)	86.5 (3.2)	89.2 (3.3)
12	122 (4.5)	105 (3.9)	81.1 (3.0)	94.6 (3.5)	86.5 (3.2)	89.2 (3.3)

Table 16. Radionuclide concentration in White Oak Lake cores, 1979

[pCi/g (Bq/g)]

Core number	Depth (cm)	
	0-2.5	12.5-15.0
Strontium-90		
1	37 (1.4)	36 (1.3)
2	47 (1.7)	31 (1.1)
3	34 (1.3)	30 (1.1)
4	29 (1.1)	28 (1.0)
5	69 (2.5)	100 (3.7)
6	28 (1.0)	36 (1.3)
7	35 (1.3)	20 (0.7)
8	22 (0.8)	35 (1.3)
9	31 (1.1)	78 (2.9)
10	23 (0.9)	52 (1.9)
11	34 (1.3)	32 (1.2)
12	51 (1.9)	59 (2.2)
Gross alpha via PrF₃		
1	0.4 (0.01)	1.4 (0.05)
2	4.7 (0.17)	4.0 (0.15)
3	5.1 (0.19)	3.7 (0.14)
4	8.5 (0.31)	1.4 (0.05)
5	12 (0.44)	9.6 (0.36)
6	8.9 (0.33)	7.7 (0.28)
7	3 (0.11)	2.2 (0.08)
8	7.7 (0.28)	1.1 (0.04)
9	2.1 (0.08)	3.2 (0.12)
10	8.8 (0.33)	10.9 (0.40)
11	10.5 (0.39)	8.5 (0.31)
12	7.7 (0.28)	6.1 (0.23)

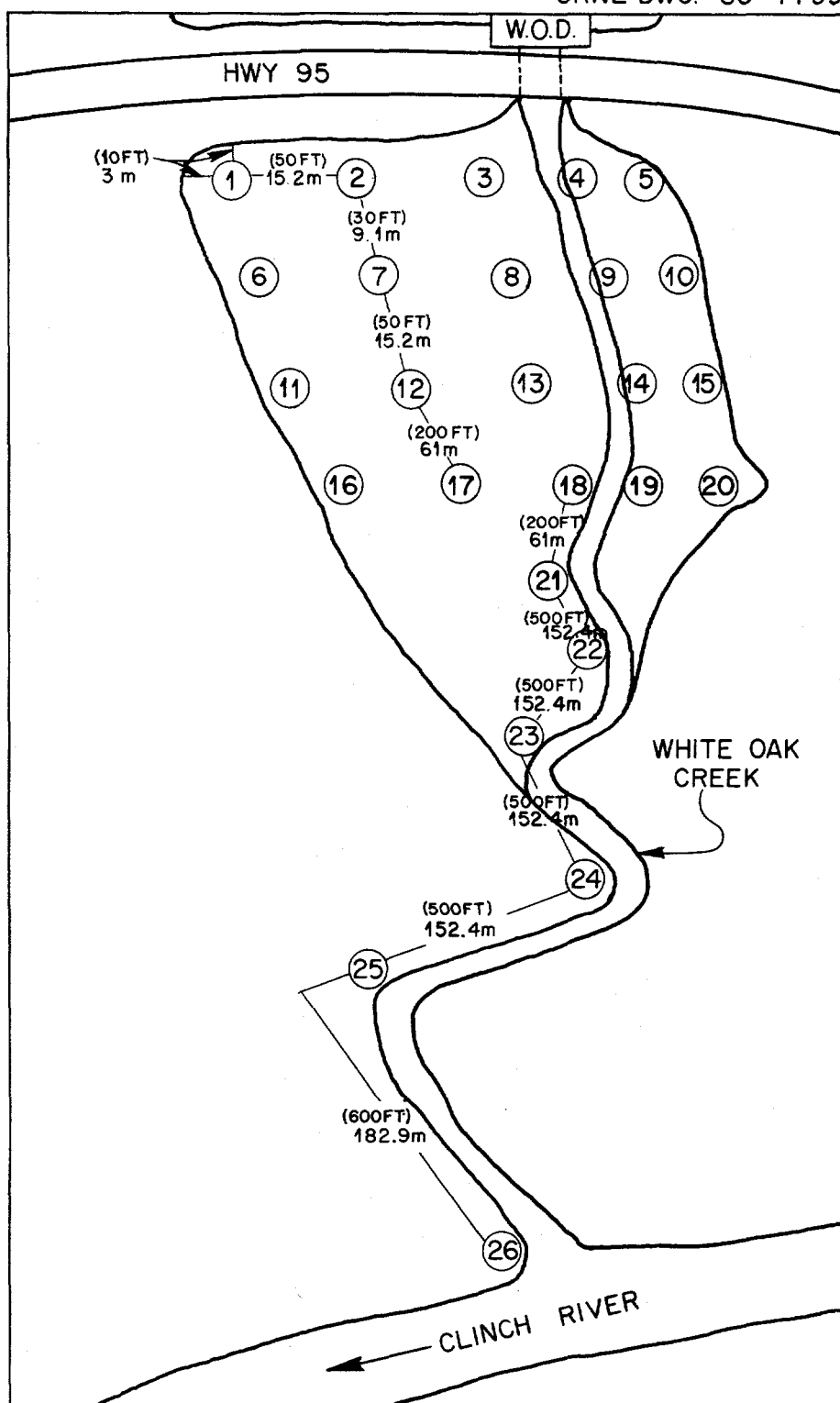


Fig. 14. Sediment sampling locations in White Oak Creek, December 1979.

Table 17. Quantity and distribution of radionuclides in sediment cores^a
from White Oak Creek downstream from dam, 1979

[pCi/g (Bq/g)]			[pCi/g (Bq/g)]		
	¹³⁷ Cs	⁶⁰ Co		¹³⁷ Cs	⁶⁰ Co
Core 1			Core 3		
1-1 ^b	406 (15.0)	50 (1.9)	3-1 ^b	309 (11.4)	42 (1.6)
1-2 ^b	400 (14.8)	47 (1.7)	3-2 ^b	318 (11.8)	41 (1.5)
1-3 ^b	275 (10.2)	37 (1.4)	3-3	170 (6.3)	23 (0.85)
1-4 ^b	281 (10.4)	36 (1.3)	3-4	64 (2.4)	8 (0.3)
1-5	243 (9.0)	18 (0.67)	3-5	23 (0.85)	3 (0.1)
1-6	224 (8.3)	14 (0.52)	3-6	8 (0.3)	1 (0.04)
1-7	78 (2.9)	6 (0.2)	3-7	5 (0.2)	0.6 (0.02)
1-8	12 (0.44)	0.8 (0.03)	3-8	5 (0.2)	0.4 (0.01)
1-9	2.0 (0.07)		3-9	1 (0.04)	
1-10	1.0 (0.04)		3-10	0.8 (0.03)	0.2 (0.01)
1-11	1.0 (0.04)		3-11	0.7 (0.03)	0.2 (0.01)
1-12	1.0 (0.04)		3-12	0.6 (0.02)	0.1 (<0.01)
1-13	1.3 (0.05)	0.7 (0.03)	3-13	5 (0.20)	0.4 (0.01)
1-14	0.6 (0.02)	0.9 (0.03)	3-14	2 (0.07)	0.5 (0.02)
1-15			3-15	22 (0.81)	3 (0.1)
1-16	0.2 (0.01)	0.2 (0.01)			
1-17		0.1 (<0.01)			
1-18	0.1 (<0.01)				
1-19	0.3 (0.01)				
1-21	2.0 (0.07)				
Core 2			Core 6		
2-1 ^b	491 (18.2)	49 (1.8)	6-1 ^b	625 (23.1)	71 (2.6)
2-2	49 (1.8)	6 (0.2)	6-2	513 (19.0)	63 (2.3)
2-3	45 (1.7)	6 (0.2)	6-3	410 (15.2)	49 (1.8)
2-4	23 (0.85)	4 (0.2)	6-4 ^b	395 (14.6)	47 (1.7)
2-5	11 (0.41)	2 (0.07)	6-5	260 (9.6)	32 (1.2)
2-6 ^b	3 (0.1)	0.8 (0.03)	6-6	31 (1.2)	3 (0.1)
2-7	3 (0.1)	0.5 (0.02)	6-7	13 (0.48)	2 (0.07)
2-8	1 (0.04)		6-8	4 (0.2)	0.5 (0.02)
2-9	1 (0.04)		6-9	3 (0.1)	0.5 (0.02)
2-10	0.9 (0.03)		6-10	0.7 (0.03)	
2-11	0.9 (0.03)		6-11	0.5 (0.02)	
2-12	0.7 (0.03)		6-12	0.5 (0.02)	0.4 (0.01)
2-13	0.7 (0.03)	0.2 (0.01)	6-13	0.3 (0.01)	
2-14	1 (0.04)		6-14		
2-15	1 (0.04)		6-15	0.6 (0.02)	
2-16	0.6 (0.02)		6-16		
2-17			6-17		
2-18	0.7 (0.03)		6-18	22 (0.81)	3 (0.1)
2-19					
2-20	0.4 (0.01)				
2-21	1 (0.04)				
2-22	9 (0.3)	0.8 (0.03)			
2-23	2 (0.07)				
2-24	1 (0.04)				
2-25	2 (0.07)				

Table 17 (continued)

[pCi/g (Bq/g)]			[pCi/g (Bq/g)]		
	¹³⁷ Cs	⁶⁰ Co		¹³⁷ Cs	⁶⁰ Co
Core 7			Core 11		
7-1 ^b	1580 (58.5)	128 (4.7)	11-1 ^b	672 (24.9)	49 (1.8)
7-2	1560 (57.7)	117 (4.3)	11-2 ^b	637 (23.6)	48 (1.8)
7-3	387 (14.3)	32 (1.2)	11-3	579 (21.4)	40 (1.5)
7-4	369 (13.7)	30 (1.1)	11-4	434 (16.1)	21 (0.78)
7-5	345 (12.8)	24 (0.89)	11-5 ⁵	426 (15.8)	15 (0.56)
7-6	630 (23.3)	39 (1.4)	11-6	292 (10.8)	13 (0.48)
7-7	397 (14.7)	23 (0.85)	11-7	137 (5.1)	5 (0.2)
7-8	97 (3.6)	6 (0.2)	11-8	Data lost	
7-9	13 (0.5)	1.3 (0.05)	11-9	165 (6.1)	1.1 (0.04)
7-10	7 (0.3)	0.5 (0.02)	11-10	400 (14.8)	2.0 (0.07)
7-11	5 (0.2)	0.4 (0.01)	11-11	1010 (37.4)	2.6 (0.10)
7-12	7 (0.3)	0.4 (0.01)	11-12	1242 (46.0)	1.3 (0.05)
7-13	2 (0.07)	0.2 (0.01)	11-13	927 (34.3)	0.9 (0.03)
7-14	2 (0.07)	0.3 (0.01)	11-14	413 (15.3)	0.4 (0.01)
7-15	2 (0.07)		11-15	23 (0.85)	
7-16	2 (0.07)		11-16	34 (1.3)	
7-17	1 (0.04)	0.3 (0.01)	11-17	30 (1.1)	
7-18			11-18	50 (1.9)	0.6 (0.02)
7-19	1 (0.04)				
7-20	12 (0.44)	1.0 (0.04)			
Core 8			Core 12		
8-1 ^b	969 (35.9)	58 (2.2)	12-1	2222 (82.2)	122 (4.5)
8-2 ^b	316 (11.7)	18 (0.67)	12-2	2385 (88.3)	127 (4.7)
8-3 ^b	249 (9.2)	16 (0.59)	12-3	2430 (89.9)	124 (4.6)
8-4	39 (1.4)	2 (0.07)	12-4	2704 (100.0)	90 (3.3)
8-5	10 (0.37)	0.8 (0.03)	12-5	678 (25.1)	26 (0.96)
8-6	5 (0.2)	0.3 (0.01)	12-6	279 (10.3)	12 (0.44)
8-7	2 (0.07)	0.4 (0.01)	12-7	281 (10.4)	12 (0.44)
8-8	2 (0.07)	0.4 (0.01)	12-8	100 (3.7)	5.3 (0.20)
8-9	3 (0.11)	0.3 (0.01)	12-9	41 (1.5)	2.6 (0.10)
8-10	4 (0.15)	0.3 (0.01)	12-10	24 (0.89)	1.9 (0.07)
8-11	0.7 (0.03)		12-11	24 (0.89)	2.7 (0.10)
8-12	0.9 (0.03)		12-12	21 (0.78)	2.0 (0.07)
8-13	1 (0.04)	0.2 (0.01)	12-13	21 (0.56)	1.7 (0.06)
8-14	1 (0.04)		12-14	8.7 (0.32)	1.4 (0.05)
8-15	1 (0.04)		12-15	3.6 (0.13)	0.5 (0.02)
8-16	1 (0.04)	0.1 (<0.01)	12-16	1.0 (0.04)	0.2 (0.01)
8-17	1 (0.04)		12-17	0.6 (0.02)	
8-18	0.5 (0.02)		12-18		
8-19	0.3 (0.01)		12-19	1.1 (0.04)	
8-20	6 (0.22)	0.5 (0.02)	12-20	0.8 (0.03)	
			12-21	1.1 (0.04)	
			12-22	1.7 (0.06)	
			12-23	32 (1.2)	1.1 (0.04)

Table 17. (Continued)

[pCi/g (Bq/g)]			[pCi/g (Bq/g)]		
	¹³⁷ Cs	⁶⁰ Co		¹³⁷ Cs	⁶⁰ Co
Core 13			17-16	10 (0.4)	1.1 (0.04)
13-1 ^b	2815 (80.8)	158 (5.85)	17-17	4.4 (0.16)	
13-2 ^b	2149 (79.5)	147 (5.44)	17-18	4.0 (0.15)	0.5 (0.02)
13-3	937 (34.6)	64 (2.4)	17-19	1.6 (0.06)	
13-4	71 (2.6)	8 (0.3)	17-20	1.5 (0.05)	
13-5	14 (0.52)	3 (0.1)	17-21	8.2 (0.30)	
13-6	22 (0.81)	2 (0.07)	17-22	170 (6.3)	3.3 (0.12)
13-7	15 (0.56)	2 (0.07)			
13-8	7 (0.3)	0.8 (0.03)	Core 18		
13-9	32 (1.2)	3 (0.1)	18-1	2986 (110.5)	104 (3.8)
			18-2	3837 (141.9)	117 (4.3)
Core 16			18-3	4073 (150.7)	117 (4.3)
16-1	293 (10.8)	26 (0.96)	18-4	4059 (150.2)	118 (4.4)
16-2	126 (4.66)	12 (0.44)	18-5	4054 (150.0)	111 (4.1)
16-3	72 (27)	7.9 (0.3)	18-6	3950 (146.2)	108 (4.0)
16-4	47 (1.7)	5.6 (0.2)	18-7	3428 (126.8)	89 (3.3)
16-5	30 (1.1)	3.3 (0.1)	18-8	1768 (65.4)	46 (1.7)
16-6	21 (0.77)	1.9 (0.07)	18-9	1232 (45.6)	32 (1.2)
16-7	13 (0.48)	0.7 (0.3)	18-10	487 (18.0)	13 (0.5)
16-8	2.5 (0.09)		18-11	408 (15.1)	12 (0.4)
16-9	3.9 (0.1)	0.3 (0.01)	18-12	25 (0.93)	0.8 (0.03)
16-10	2.8 (0.1)	0.3 (0.01)	18-13	75 (2.8)	1.9 (0.07)
16-11	1.0 (0.04)		18-14	3.8 (10.5)	
16-12	1.2 (0.04)		18-15	22 (0.81)	0.6 (0.02)
16-13	3.0 (0.1)	0.1 (0.003)	18-16	14 (0.52)	0.3 (0.01)
16-14	6.5 (0.2)		18-17	3.5 (0.13)	
16-15	3.4 (0.1)		18-18	5.0 (0.19)	
16-16	1.8 (0.07)		18-19	1.3 (0.05)	
16-17	1.5 (0.06)		18-20	0.3 (0.01)	
16-18	1.6 (0.06)		18-21	82 (3.03)	2.1 (0.08)
Core 17			Core 19		
17-1	4949 (183.1)	143 (5.3)	19-1	1222 (45.2)	86 (3.2)
17-2	3677 (136.0)	120 (4.4)	19-2	929 (34.4)	61 (2.3)
17-3	4400 (162.8)	138 (5.1)	19-3	301 (11.1)	16 (0.6)
17-4	5968 (220.8)	154 (5.7)	19-4	135 (5.0)	7.3 (0.3)
17-5	7127 (263.7)	174 (6.4)	19-5	116 (4.3)	6.3 (0.2)
17-6	5271 (195.0)	147 (5.4)	19-6	22 (0.8)	1.2 (0.04)
17-7	3567 (132.0)	128 (4.7)	19-7	19 (0.7)	1.0 (0.04)
17-8	2297 (85.0)	99 (3.7)	19-8	4.1 (0.15)	0.3 (0.01)
17-9	1435 (53.1)	66 (2.4)	19-9	1.2 (0.04)	
17-10	854 (31.6)	40 (1.5)	19-10	1.5 (0.06)	
17-11	610 (22.6)	28 (1.04)			
17-12	229 (8.5)	10 (0.37)	Core 20		
17-13	130 (4.8)	8.7 (0.32)	20-1	439 (16.2)	36 (1.3)
17-14	96 (3.6)	6.8 (0.25)	20-2	268 (9.9)	28 (1.0)
17-15	31 (1.1)	2.6 (0.10)			

Table 17 (continued)

[pCi/g (Bq/g)]			[pCi/g (Bq/g)]		
	¹³⁷ Cs	⁶⁰ Co		¹³⁷ Cs	⁶⁰ Co
19-11	1.9 (0.07)		20-3	227 (8.4)	25 (0.93)
19-12	3.8 (0.14)		20-4	91 (3.4)	11 (0.41)
19-13	5.8 (0.21)		20-5	43 (1.6)	4.4 (0.16)
19-14	7.7 (0.28)		20-6	29 (1.1)	2.0 (0.07)
19-15	3.6 (0.13)		20-7	38 (1.4)	2.0 (0.07)
19-16	2.8 (0.10)		20-8	34 (1.3)	2.2 (0.08)
19-17	4.3 (0.16)		20-9	8.8 (0.33)	1.3 (0.05)
19-18	3.6 (0.13)		20-10	4.8 (0.18)	0.8 (0.03)
19-19	4.6 (0.17)		20-11	7.3 (0.27)	1.0 (0.04)
19-20	3.2 (0.12)		20-12	2.1 (0.08)	0.6 (0.02)
19-21	3.5 (0.13)		20-13	5.6 (0.21)	0.8 (0.03)
19-22	2.4 (0.09)		20-14	4.3 (0.16)	
19-23	1.2 (0.04)		20-15	5.7 (0.21)	0.5 (0.02)
19-24	0.5 (0.02)		20-16	5.5 (0.20)	0.5 (0.02)
19-25	17 (0.63)	1.0 (0.04)	20-17	50 (1.9)	3.9 (0.14)
Core 23			Core 24		
23-1	1020 (37.7)	37 (1.4)	24-1	526 (19.5)	12 (0.44)
23-2	986 (36.5)	35 (1.3)	24-2	473 (17.5)	11 (0.41)
23-3	1011 (37.4)	37 (1.4)	24-3	540 (20.0)	13 (0.48)
23-4	1155 (42.7)	43 (1.6)	24-4	584 (21.6)	14 (0.52)
23-5	1322 (48.9)	53 (2.0)	24-5	470 (17.4)	10 (0.37)
23-6	1401 (41.8)	53 (2.0)	24-6	439 (16.2)	11 (0.41)
23-7	1556 (57.6)	51 (1.9)	24-7	258 (9.6)	7.2 (0.27)
23-8	1738 (64.3)	50 (1.9)	24-8	164 (6.1)	4.9 (0.18)
23-9	1647 (60.9)	47 (1.7)	24-9	966 (35.7)	16 (0.59)
23-10	1657 (61.3)	48 (1.8)	24-10	2369 (87.7)	34 (1.3)
23-11	1591 (58.9)	50 (1.9)	24-11	4089 (151.3)	34 (1.3)
23-12	1604 (59.4)	43 (1.6)	24-12	4331 (160.3)	27 (1.0)
23-13	1716 (63.5)	39 (1.4)	24-13	3110 (115.1)	22 (0.81)
23-14	1836 (67.9)	42 (1.6)	24-14	4304 (159.3)	32 (1.2)
23-15	1801 (66.6)	42 (1.6)	24-15	3551 (131.4)	19 (0.70)
23-16	1843 (68.2)	42 (1.6)	24-16	1071 (39.6)	6.6 (0.24)
23-17	1837 (68.0)	41 (1.5)	24-17	343 (12.7)	2.8 (0.10)
23-18 ^b	2050 (75.9)	44 (1.6)	24-18	297 (11.0)	2.9 (0.11)
23-19 ^b	2110 (78.1)	38 (1.4)	24-19	299 (11.1)	3.4 (0.13)
23-20	3157 (116.8)	59 (2.2)	24-20	593 (21.9)	8.0 (0.30)
23-21	7610 (282)	124 (4.6)	23-21	1893 (70.0)	30 (1.1)
23-22	12,900 (477)	234 (8.7)	24-22	1427 (52.8)	0.3 (0.01)
23-23	17,800 (658)	282 (10.4)			
23-24	21,200 (784)	227 (8.4)			
23-25	29,300 (1080)	383 (14.2)			
23-26	60,700 (2250)	581 (21.5)			
23-27	22,200 (821)	498 (18.4)			
23-28	15,900 (588)	446 (16.5)			
23-29	12,400 (459)	332 (12.3)			

Table 17 (continued)

	[pCi/g (Bq/g)]		[pCi/g (Bq/g)]	
	¹³⁷ Cs	⁶⁰ Co	¹³⁷ Cs	⁶⁰ Co
23-30A	5875 (217)	144 (5.3)		
23-30B	1590 (58.8)	64 (2.4)		
23-31	917 (33.9)	40 (1.5)		
23-32	1547 (57.2)	60 (2.2)		
23-33	590 (21.8)	47 (1.7)		
23-34	542 (20.1)	48 (1.8)		
23-35	2927 (108.3)	76 (2.8)		

^aNumber after dash in core identification indicates depth within the core (in.).

^bSamples may contain ²⁴¹Am.

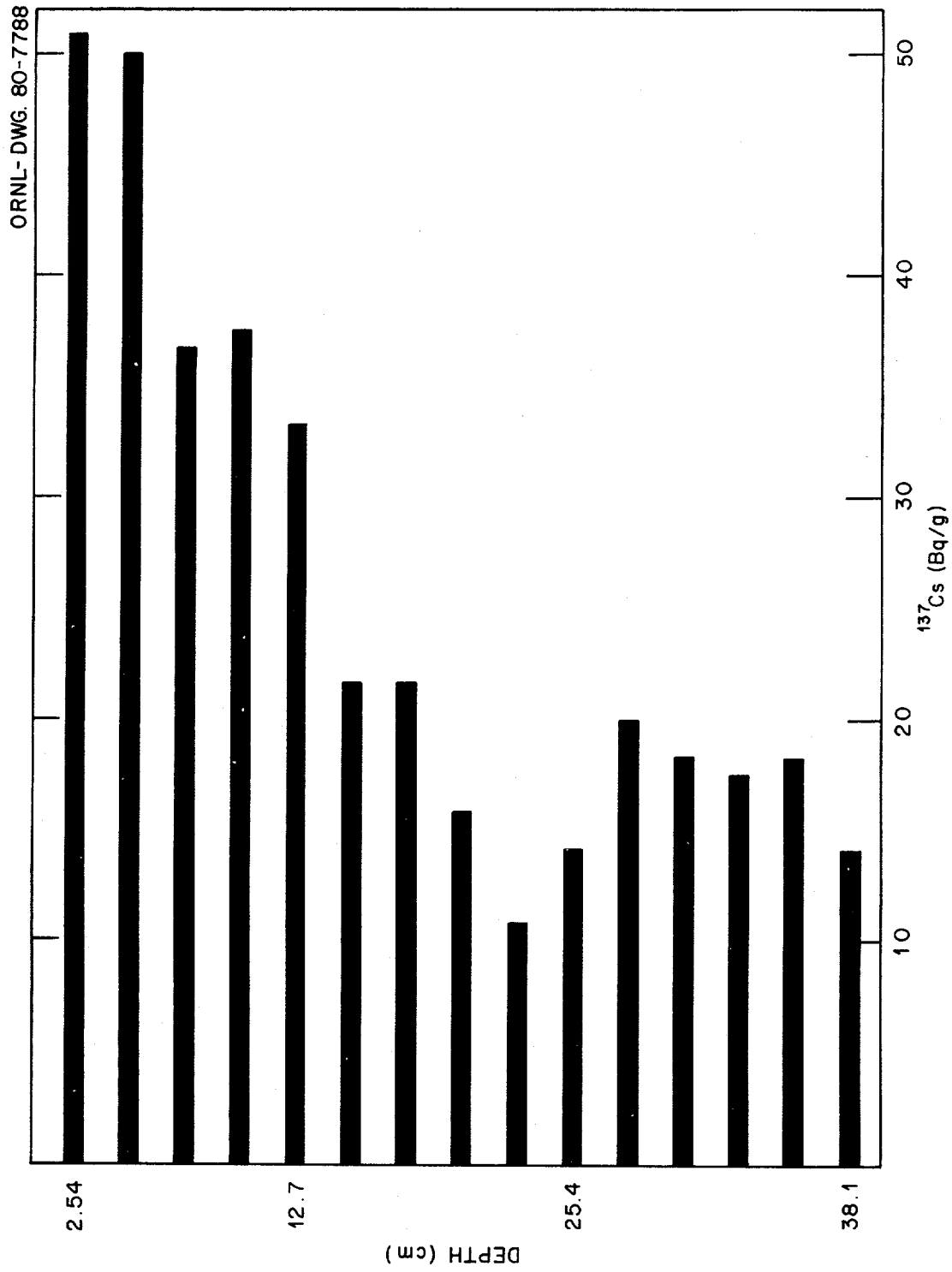


Fig. 15. Cesium-137 content (Bq/g) in White Oak Creek sediment, 1978 sampling program.

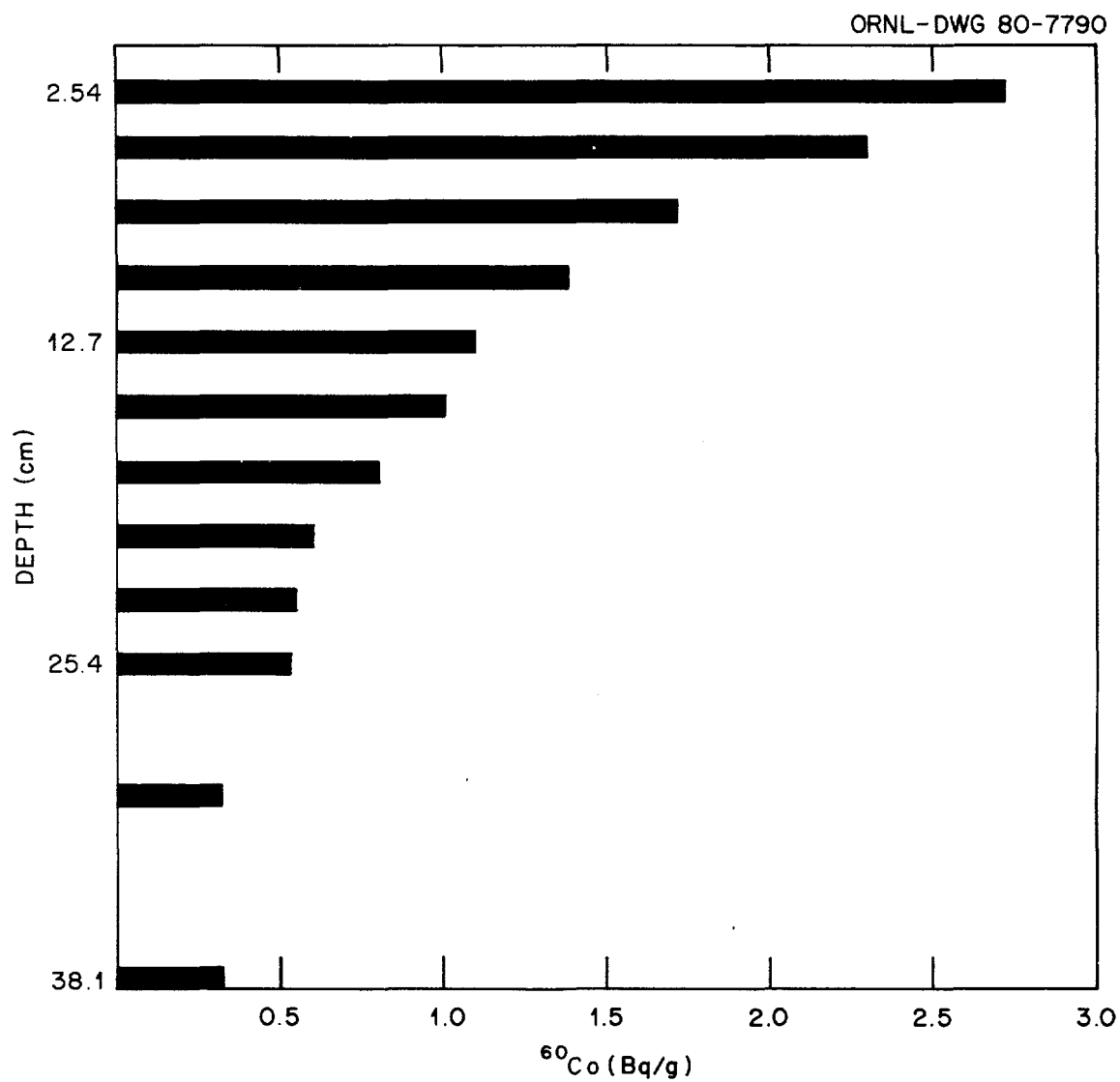


Fig. 16. Cobalt-60 content (Bq/g) in White Oak Creek sediment, 1978 sampling program.

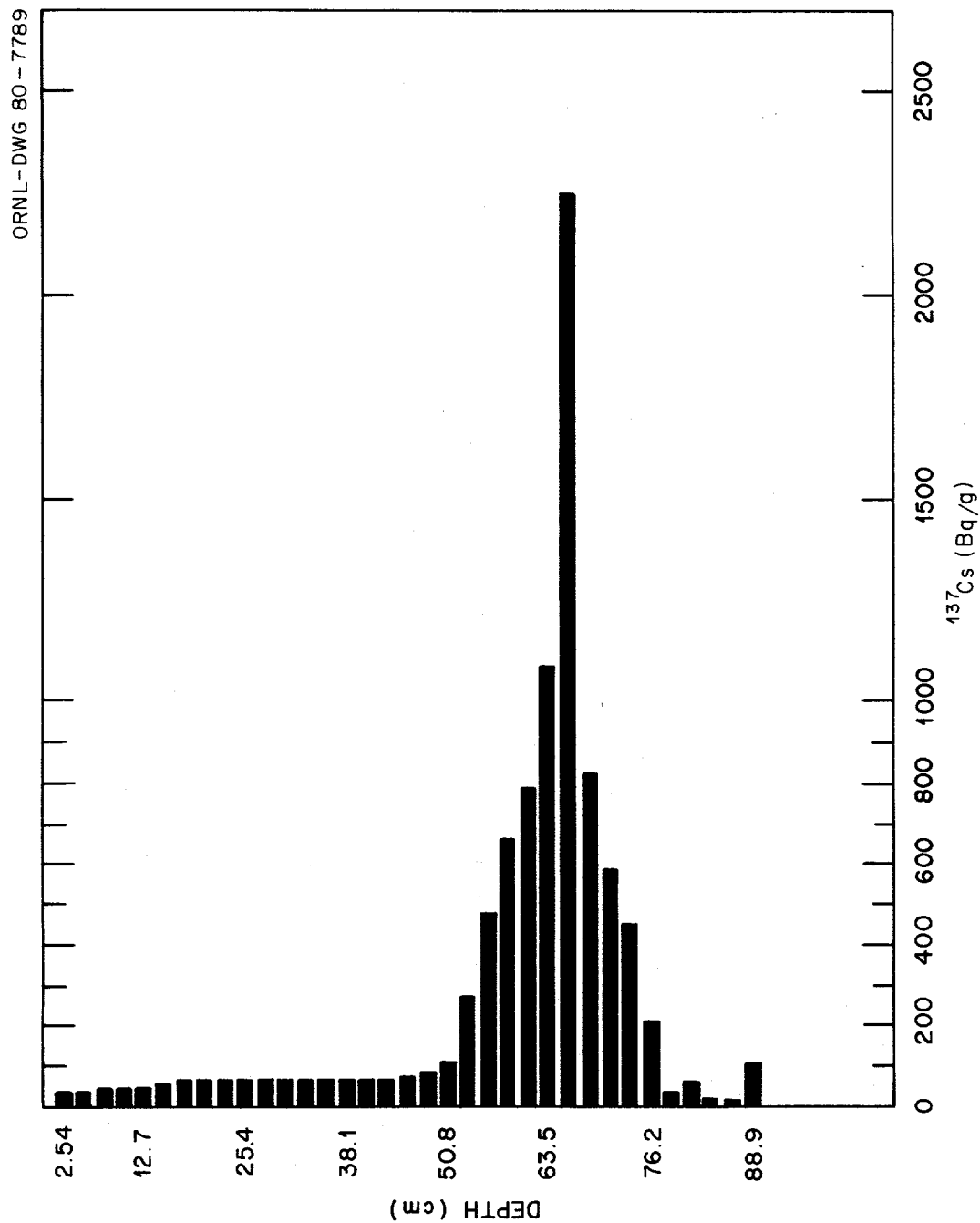


Fig. 17. Cesium-137 content in core 23, 1978 sampling program.

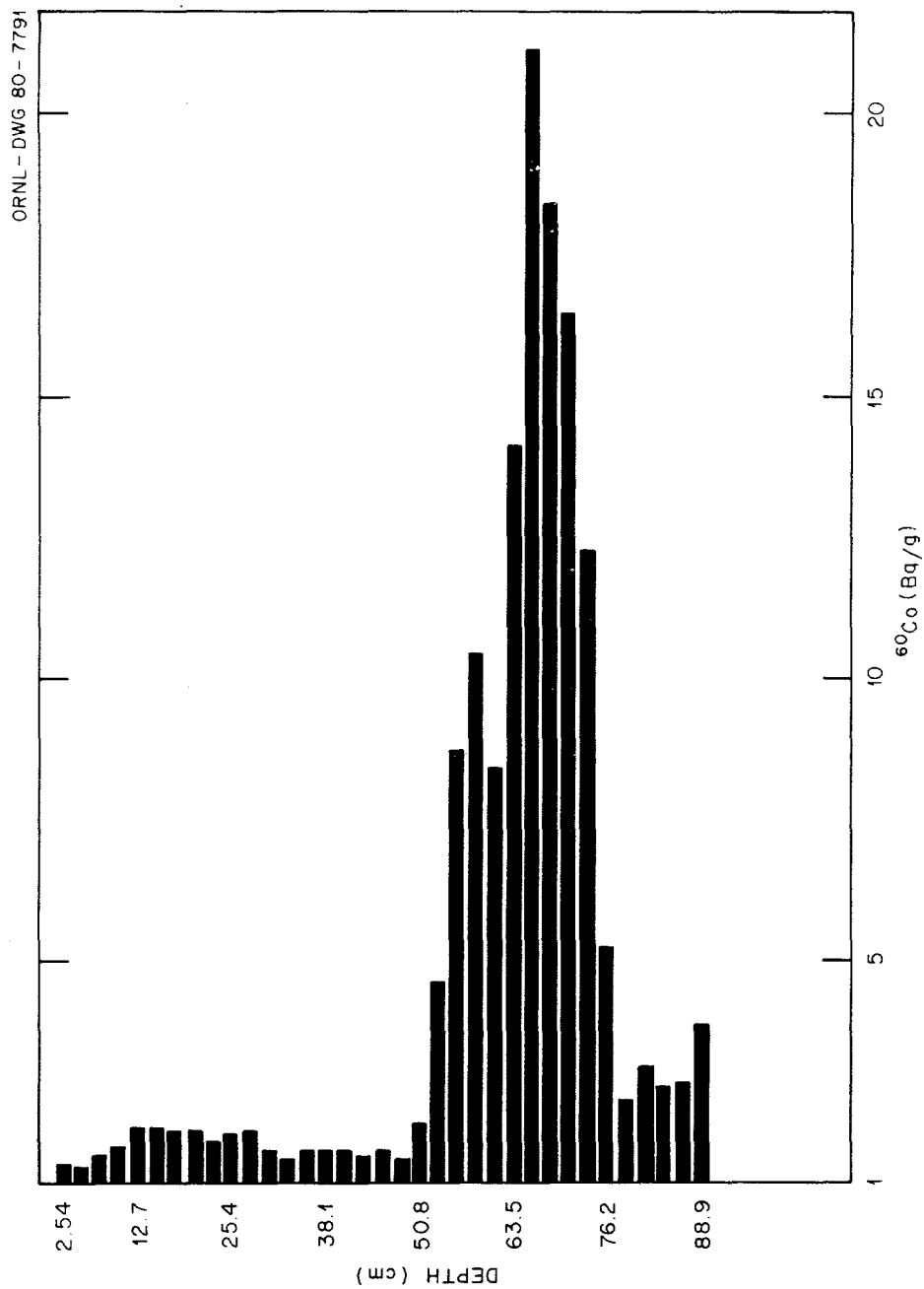


Fig. 18. Cobalt-60 content in core 23, 1978 sampling program.

6. ESTIMATE OF ACTIVITY STORED IN THE SEDIMENTS OF WHITE OAK LAKE

To obtain an estimate of the activity stored in the sediments, it was first necessary to ascertain the spatial relationship of the available core data. To do this, the sediment input of 100,000 ft³/year (2832 m³/year) was used to calculate how the sediment thickness changed with time. The results of this calculation showed that the 6-in. (15-cm) core taken in 1979 (Tables 14-16) began where the 6-in. (15-cm) core taken in 1972 ended. However, the 1972 core began 2.5 in. (6.4 cm) above where the 1962 core ended. Since no data were available for the period between 1962 and 1972, the 1972 core data were used to represent the activity in this region.

Thus, activity data on a 38.4-in. (98-cm) cross section of the sediment became available. The volume of the sediments was calculated to be 4.6×10^6 ft³ (1.3×10^5 m³). Using a sediment density of 1.1 g/cm³, the total activity in the sediments could be estimated. The total activity in White Oak Lake sediments is estimated to be 644 Ci (23.8 TBq), which is made up of the following nuclides: ¹³⁷Cs, 591 Ci (21.9 TBq); ⁶⁰Co, 33 Ci (1.2 TBq); and ⁹⁰Sr, 20 Ci (0.74 TBq) (Oakes et al. 1982).

TRU data are available only for the top 6 in. (15 cm) and indicate 0.87 Ci (0.03 TBq) of TRU nuclides: ²³⁸Pu, 0.096 (0.004); ²³⁹Pu, 0.250 (0.01); ²⁴¹Am, 0.024 (0.001); and ²⁴⁴Cm, 0.498 (0.02) (Oakes et al. 1982).



7. CLINCH RIVER SEDIMENT SAMPLING PROGRAM

In the study reported here, the Clinch River was surveyed from Melton Hill Dam (CRM 23.5) to a point below its confluence with the Tennessee and Emory rivers to determine the distribution of gamma activity using a device called a flounder, a submersible Geiger-Mueller counting system. Locations for the collection of sediment cores were chosen to give a representative distribution of samples sufficient to determine the spatial distribution of radioactivity in the bottom sediment of the river. Results of the flounder survey also influenced the locations chosen for sampling. (Later analysis of the core samples indicated that the flounder readings were more strongly influenced by natural background than by nuclides discharged by ORNL. In previous surveys, the flounder had been effective in showing the gross distribution of the activities because discharged activities were more prominent.) Core samples of unconsolidated bottom sediment were collected by Sprague and Henwood Company of Scranton, Pennsylvania, under contract to ORNL. Undisturbed cores of bottom sediments were obtained using a Swedish foil sampler. This piston-type coring device was chosen for sampling because of its unique design and its ability to collect continuous 2½-in.-diam. (6.4 cm) cores with no cross contamination. The basic principle of the sampler is the method of insulating the core from the inside of the sampler by means of 16 axial metal strips or foils, each 0.0005 in. (0.13 mm) thick and 0.5 in. (1.3 cm) wide. The upper ends of the foils are attached to a piston located in the sampler immediately above the core. The piston is attached by a rod or chain to the driving scaffold at the surface. The piston, with foils, is kept at a constant level while the sampler is forced down. During the advance of the sampler, the inside walls slide against the foils which in turn encase the sample. There is, therefore, no slide between the core and the coupler or the foils. The recovery ratio is kept equal to 100%. The mechanics of the operation of this sampler can be seen in Fig. 19.

The principal advantage of this sampler was the ability to take long cores or full cores from the surface of the sediment to its base on bedrock or hardpan. Also, high-silt sediments were completely recoverable. The sampler was driven into the sediment until firm ground was reached and until it was impossible to push the sampler any further. The cores were removed from the coring device with the foil sheath intact and transferred to 6.6-ft (2-m) long plastic tubes, which were labeled and capped for freezer storage.

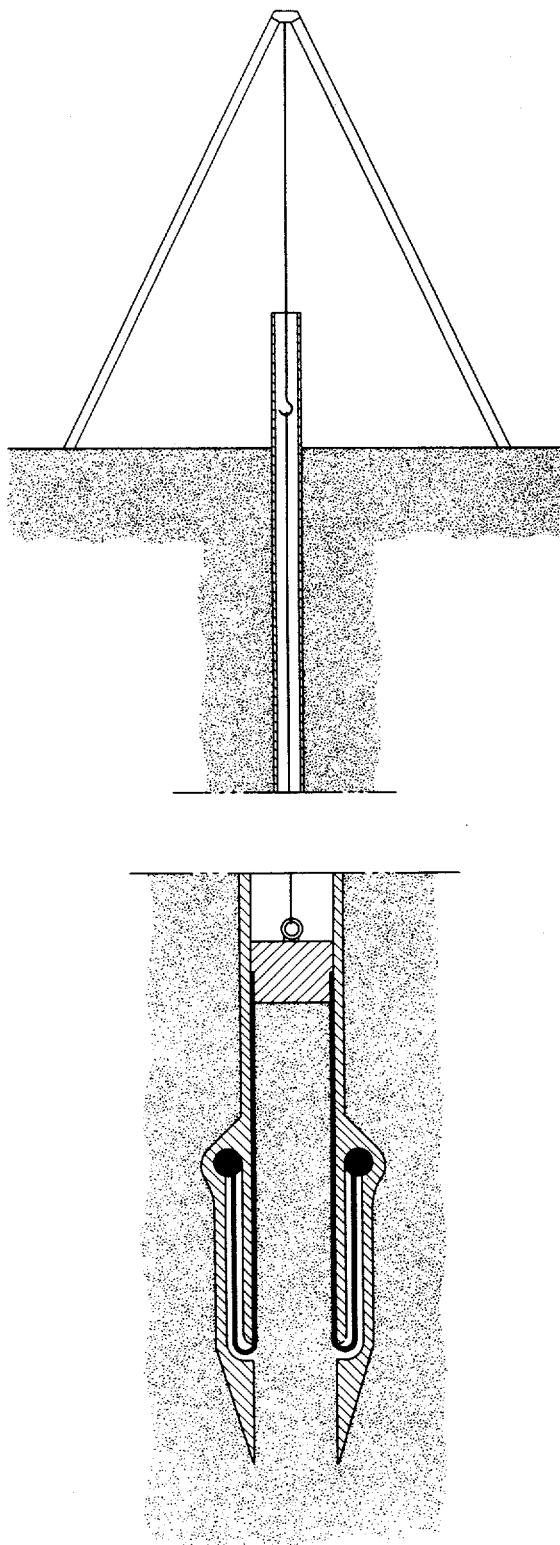


Fig. 19. The principle of the Swedish foil sampler shown schematically.

8. TREATMENT AND SAMPLING OF CORES

Cores were labeled with the collection location (CRM and location with respect to the river banks), date and time, and other pertinent information. Following the detailed data logging and labeling, cores were taken to a storage facility and frozen for preservation before sampling for analysis. Cores remained frozen until the night before sampling.

Gamma-ray scanning to obtain vertical profiles of the cores was attempted to locate the sites containing high levels of gamma-ray emissions. However, the profile analyses of core samples in this study differed from those in the 1960–1964 study because much lower levels of gamma-ray-emitting nuclides were present in this collection. The major gamma-ray emitter in the earlier cores was ^{106}Rh , the daughter of 368-d ^{106}Ru . This fission product pair emitted 511 and 621 keV gamma rays in sufficient intensity to permit the use of an automatic core scanner for determining the location of fission product horizons. An initial attempt at again using the same type of core scanner was unsuccessful because of the low levels of gamma-ray-emitting nuclides and a high and variable background on the core scanner.

The lack of sensitivity for automatic scanning led to an alternate scheme of sampling for determining vertical profiles. Cores were sampled at distances of 1, 3, 5, 7, 9, 11, 13, 16, 20, 24, 30, 36, 40, and 45 in. (3, 8, 13, 18, 23, 28, 31, 41, 51, 61, 76, 91, 102, and 114 cm) from the top of the cores. Samples were taken by drilling two 1-in.- (3-cm-) diameter holes through the plastic storage tube at each location. Core material was removed with a laboratory cork borer. The core material was ejected from the cork borer into plastic Petri dishes 4 in. (10 cm) in diameter and 0.6 in. (1.5 cm) in height. After removal of core material, the holes were covered with plastic tape, and the cores were returned to the storage freezers. The core materials (samples) were dried overnight at 105°C, ground to approximately 28-mesh particles with mortar and pestle, and placed in plastic dishes 2.8-in. (7.0-cm) diameter by 0.6-in. (1.6-cm) height for analysis using high resolution spectroscopy.



9. ANALYTICAL METHODOLOGY

Methods for the Ge(Li) spectroscopic determinations are described in detail in Eldridge, Oakes, and Pruitt (1977). All core segments were analyzed for gamma-ray-emitting nuclides by these techniques. A suitable aliquot of the homogenized soil sample was taken to evenly fill a plastic Petri dish of 2.8-in. (7.0-cm) diameter and 0.6-in. (1.6-cm) height. The volume of such a container is about 2.4 in. (6.2 cm³). Nominal soil densities resulted in sample weights of 70 g, but variations from 50 to 100 g were not uncommon. The net weight of the sample was determined to the nearest 0.1 g. One turn of plastic electrical tape was placed around the edge of the dish to prevent spillage of the contents, and the Petri dish was placed in a thin polyethylene freezer bag for contamination control during the spectroscopic measurement.

The high-resolution gamma-ray spectrometer system used for all sample assays in this program consisted of a lithium-drifted germanium detector with an efficiency of 22.7% that of a 3 × 3-in. (7.6 × 7.6-cm) NaI(Tl) detector at 10 in. (25 cm) for the 1.33-MeV gamma ray of ⁶⁰Co. The detector resolution was 2.2 keV full width at half maximum for 1.33-MeV gamma rays. Shielding for the detector was provided by a lead shield with graded liner and 3-in. (7.6-cm) walls. The entire assembly was housed in a special counting room surrounded by 24 in. (61 cm) of high-density concrete. The remainder of the spectrometer system consisted of a Nuclear Data, Inc., Model 4420 computer-based pulse-height analyzer with an industry-compatible magnetic tape transport.

Counting geometry for the Petri dishes containing the prepared soil materials was very simple—the dishes were placed directly on the end cap of the detector. Reproducibility of sample placement was easy to control since the sample containers had the same diameter as the detector.

The efficiency of the detector system was determined by analyzing a 70-g aliquot of a U.S. Department of Energy, New Brunswick Laboratory Uranium Standard Number 42-4. This material was certified to contain uranium from pitchblende in a dunite matrix at a concentration of 0.52 ± 0.006 wt %. In addition, the material was said to contain 3.45×10^{-7} grams radium per gram of uranium. In effect, this standard material is a radium standard containing all the useful gamma rays of the radium decay chain. Thus, an entire efficiency curve was constructed covering the energy range of 200–2200 keV with this single-source material. With the counting container filled with 70 g of this standard, the radium content is 4.59×10^3 dis/s. The physical and electronic density of the dunite matrix is a suitable match for the soil samples measured in this program.

Because of the relatively short time available for the analysis of about 2500 core segments, it was arbitrarily decided that 2000 s would be the standard counting interval. This interval previously yielded valid results for ²²⁶Ra at the 1-pCi/g (0.037-Bq/g) level with this counting system. The lower measurement limit for ¹³⁷Cs in the configuration for this counting interval is 0.2–0.5 pCi/g (0.007–0.019 Bq/g), depending on the complexity of the remainder of the gamma-ray spectrum. At this lower measurement limit, counting statistics uncertainties are of the order of $\pm 30\%$ for ¹³⁷Cs determinations. At the 1–2 pCi/g (0.037–0.074 Bq/g) level and above, counting statistics uncertainties become less important than uncertainties because of geometry, weight, and density. Under the best conditions, estimates are that the overall uncertainty is $\pm 6\%$, while the average uncertainty for these samples is of the order of $\pm 10\%$ (standard deviation).



10. DATA REDUCTION

Two independent computer programs were used to process the data collected in the gamma-ray spectrometer system. The first program, which is on-line, is part of the ND 4420 Single Parameter Monitor Program (41-1076).^{*} The on-line program examines the spectral data and determines the area, background, centroid, full width at half maximum (FWHM), and the energy of each peak in the spectrum. The values are determined using a peak extraction process, which is based on the FWHM and sensitivity parameters. The on-line program provides an immediate readout, and the data are useful for quality control or other purposes. To produce quantitative results, the area determined for each peak must be corrected for counting efficiency, branching ratio, and sample weight.

The second program used for data reduction runs on an IBM 360 and is called MONSTR. This program is performed in a batch mode and operates on spectral data submitted on compatible magnetic tape. Output from the ND 4420 system is stored on tape with experiment parameter information. The initial portion of MONSTR performs a peak extraction in a fashion similar to the on-line program. However, MONSTR contains routines for efficiency correction and nuclide identification, so that the final output lists the identity of each major nuclide along with a quantitative determination of its concentration. Detailed comparisons of the two programs showed results that were in agreement. Thus, the on-line system was used in a backup mode and as a complement to the generally useful MONSTR.

Both the strontium and plutonium analyses were performed using the detailed radiochemical separations and counting methods developed by the Analytical Chemistry Division (Scott 1980). The precision of the plutonium analyses is estimated to be $\pm 20\%$, whereas strontium values at the 95% confidence level are estimated to be precise to $\pm 12\%$.

About 300 cores with an average of 12 segments per core were analyzed in this study from the Clinch, Tennessee, and Emory rivers. Quantitative values for only two residual radionuclides, ^{137}Cs and ^{60}Co , were acquired in this spectrometric study. In some cores, the presence of ^{241}Am , a transuranic nuclide emitting 60-keV gamma rays, was determined. The detection of ^{241}Am was qualitative only, and quantitative values were later obtained by radiochemical separations. Americium-241-containing cores are marked with an asterisk in the tabular results in Appendix A.

Low-level radionuclide determinations via gamma-ray spectroscopy yield quantitative determinations for all nuclides emitting gamma rays with energies greater than about 100 keV. Uranium- and thorium-series radioelements may be determined via gamma-ray-emitting daughter nuclides. Radium-226 (indicative of uranium concentrations) was determined in all core segments but was not reported because, in general, ^{226}Ra values differed little from a nominal 1-pCi/g (0.037-Bq/g) level throughout the Clinch River Basin.

Following gamma-ray spectrometric determinations, selected core samples were taken for destructive radiochemical analyses. The same samples used in the gamma-ray determination were used for subsequent radiochemical determination. Financial limitations prevented detailed studies of ^{90}Sr and transuranic distributions in all core samples. Consequently, analyses for these radioelements were performed on selected samples (about half of the total core collection). In

^{*}Nuclear Data, Inc., Schaumburg, Illinois.

general, three core segments were taken from those cores selected for study. In the absence of ^{137}Cs values as a guide for radionuclide deposition, samples at the top, middle, and bottom of the selected cores were submitted for ^{90}Sr , $^{239,240}\text{Pu}$, and ^{238}Pu determinations. Americium-241 and ^{244}Cm determinations were performed on a small number of core segments. The segments for ^{241}Am and ^{244}Cm determinations were usually selected via the qualitative detection of 60-keV gamma rays in the initial measurements. Detailed results from all the core segment analyses are presented in Appendix A.

11. QUALITY CONTROL

Early in the analytical program of the Clinch River samples, we decided to submit data to the computer for resolution by means of program MONSTR. Batches of 30 spectra are the limit for the present operating parameters. Therefore, it was decided that a quality control check would be submitted with every magnetic tape containing 30 spectra. In the beginning, 2½ days elapsed between quality control samples, but such controls were run each day when three work shifts were used in the analytical program.

The quality control sample consisted of a 70-g aliquot of New Brunswick Laboratory 42-4 Uranium Standard in an exact configuration as the experimental samples. The quality control standard was calculated to contain 1773 pCi/g (65.6 Bq) of ^{226}Ra . The standard was measured a total of 46 times during the measurement program yielding a mean value and standard deviation of 1750 ± 10 pCi/g (64.8 Bq/g) with a range of 1726–1770 pCi/g (63.8–65.4 Bq/g). There were no outliers. Since the quality control sample was processed as an experimental sample through the entire measurement and data reduction sequence, it served as an overall measure of quality assurance in the analytical method and as a quality control measure of equipment performance, computer procedures, and technician reliability.

Before performing the radiochemical analyses on the Clinch River core samples, a study was made comparing the adequacy of hot nitric-acid leaching and carbonate fusion for the extraction of the radionuclides from the core samples. In the study, core samples that were known to contain radionuclides were prepared for analysis in a like manner to the actual samples by oven drying, pulverizing, and screening through a 100-mesh screen. The prepared test samples were then analyzed in replicates by two analysts. Using each of two methods, each analyst performed six replicate analyses for ^{90}Sr and five replicate analyses for ^{239}Pu . The results of the test analyses indicated no significant difference between the two methods; however, the analyses performed by hot nitric acid leaching were more precise.

Since the leaching method was more accurate and simpler to perform, it was the method selected to use in dissolution for core samples in the present study.



12. RESULTS

12.1 General Discussion

Tabular presentation of all results obtained in this study are given in the Appendix. To illustrate areas of deposition, a summary presentation of the tabular data is shown in Figs. 20 and 21. Figure 20 presents the upper portion of the study reach from Melton Hill Dam at CRM 23 on the upstream side to CRM 9 on the downstream side. The distances on the river (e.g., CRM 15.0), refer to the mileage along the river upstream from the Clinch River confluence with the Tennessee River at TRM 568. Sampling protocols were established to cover as much of the Clinch River Basin as possible within funding limitations. In general, core samples were taken at quarter-mile increments along the length of the river with four evenly spaced cores across the river's width at each point. In some locations, 1/8-mile increments were sampled (see CRM 14 and 15).

WOC (the outfall of White Oak Lake drainage system) carries radioactive liquid waste discharges from present and past operations from ORNL. WOC enters the Clinch River at CRM 20.8 (see location on the right side of Fig. 20). From earlier deposition patterns and bottom radioactivity measurements, a heavy sampling program was conducted near the outfall of WOC and for short distances downstream. Approximately 21 cores were taken from WOC outfall to the midpoint of Jones Island. Only in two cores of the 21 taken at this site, were ^{137}Cs values found to be between 50 and 100 pCi/g (1.9 and 3.7 Bq/g). All other values were 50 pCi/g (1.9 Bq/g) or less.

Major deposition areas in the upper 10-mile (16-km) reach of the Clinch River Basin may be seen in Fig. 20 by location of solid symbols \blacktriangle or \bullet in the river course. One such area is found in the region between CRM 16 and 17 near the site of the proposed Clinch River Breeder Reactor. The next downstream deposition area is concentrated near CRM 14 at the Gallaher Bridge crossing. Cesium-137 depositions also occur along the river bend between CRM 10 and 13.

Figure 21 graphically presents locations of the core samples in the lower study reach. Core sampling frequency in the lower reach was less than that in the upper portion of the river (Fig. 20). A total of 250 cores was taken, including 12 in the Tennessee River.

From the results of core sectioning analyses, we found that areas of radionuclide deposition occurred at varying depth horizons at a given core location. Figure 22 shows a graphical representation of the radionuclide concentrations vs depth within the core for a core taken at CRM 14.375—60 ft (18-m) from the left bank (see Table A-103, Appendix A). In this distribution profile, it can be seen that ^{137}Cs (long dashes) has a maximum concentration horizon at 7-in. (18-cm) depth within the sediment. The ^{137}Cs concentration at that level is 141 pCi/g (5.2 Bq/g). Strontium-90, shown by the solid bar, has a maximum concentration in the surface layer of 0.68 pCi/g (0.025 Bq/g), followed by a secondary maximum of 0.6 pCi/g (0.02 Bq/g) at 7-in. (18-cm) depth. Plutonium-239 and ^{240}Pu (short dashes) behave similarly to the ^{137}Cs distributions, yielding a maximum concentration of 0.9 pCi/g (0.03 Bq/g) at the 7-in. (18-cm) depth.

About 3 miles (4.8 km) downstream from the sampling location described above, the deposition pattern of radionuclides in the bottom sediments is more complex. Figure 23 shows the graphical representation of radionuclide concentrations vs depth for a core taken at CRM 11.5—30 ft (9.1 m) from the left bank (see Table A-146, Appendix A). Three layers of ^{137}Cs deposition maxima (long dashes) are seen at depths of 7, 16, and 35 in. (18, 41, and 89 cm) within the bottom sediment. Detectable quantities of ^{137}Cs were measured as deep as 50 in. (127 cm) in this core. The greatest concentration of ^{137}Cs [421 pCi/g (16 Bq/g)] occurred at the

ORNL-DWG 81-9373

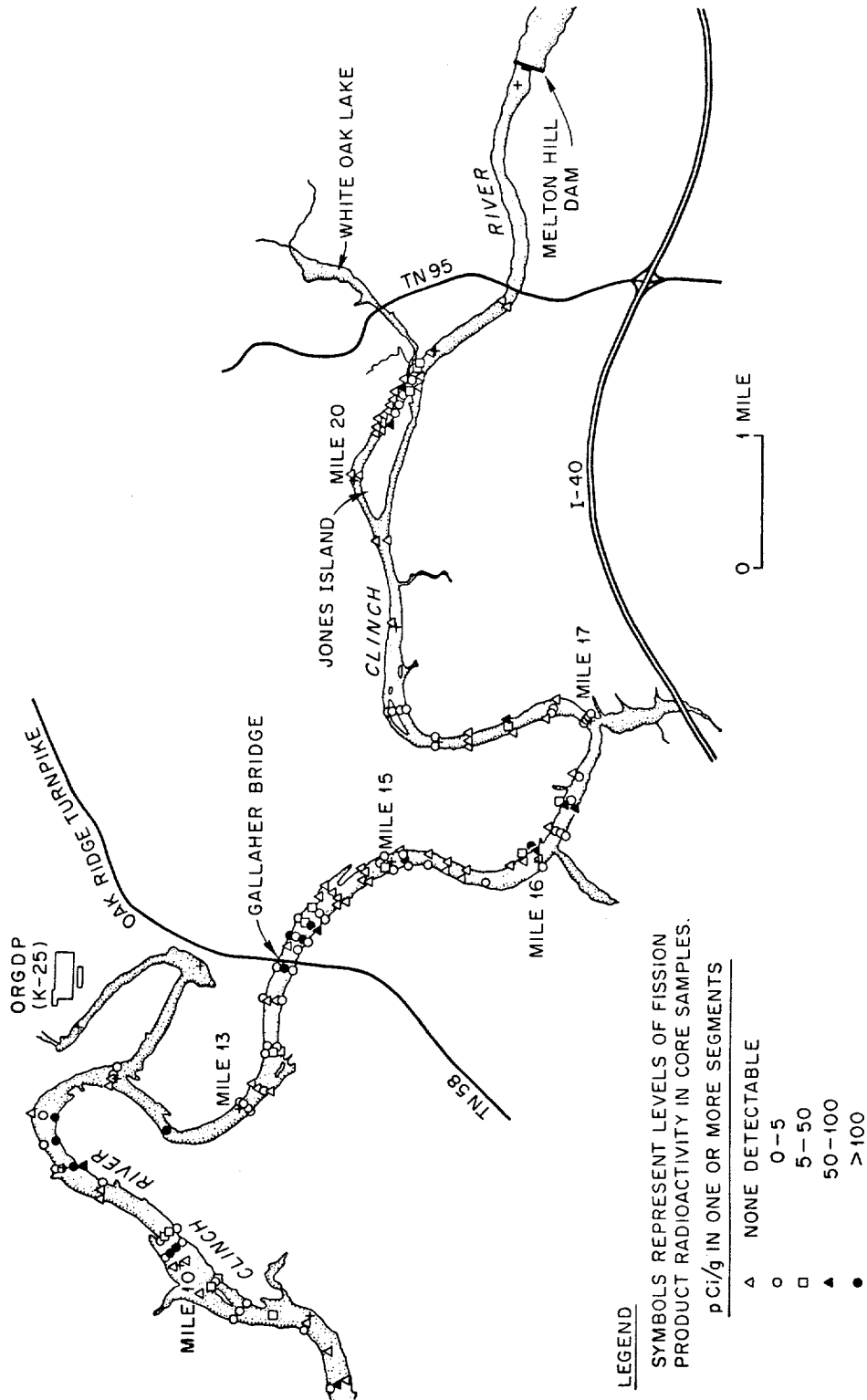


Fig. 20. Upper reach of Clinch River from CRM 9 to CRM 23 at Melton Hill Dam. Location of core samples and approximate levels of ^{137}Cs activity are shown by the symbols within the river course. Effluent from White Oak Lake drainage basin enters the river at CRM 20.8, and the river flow is from right to left in the figure.

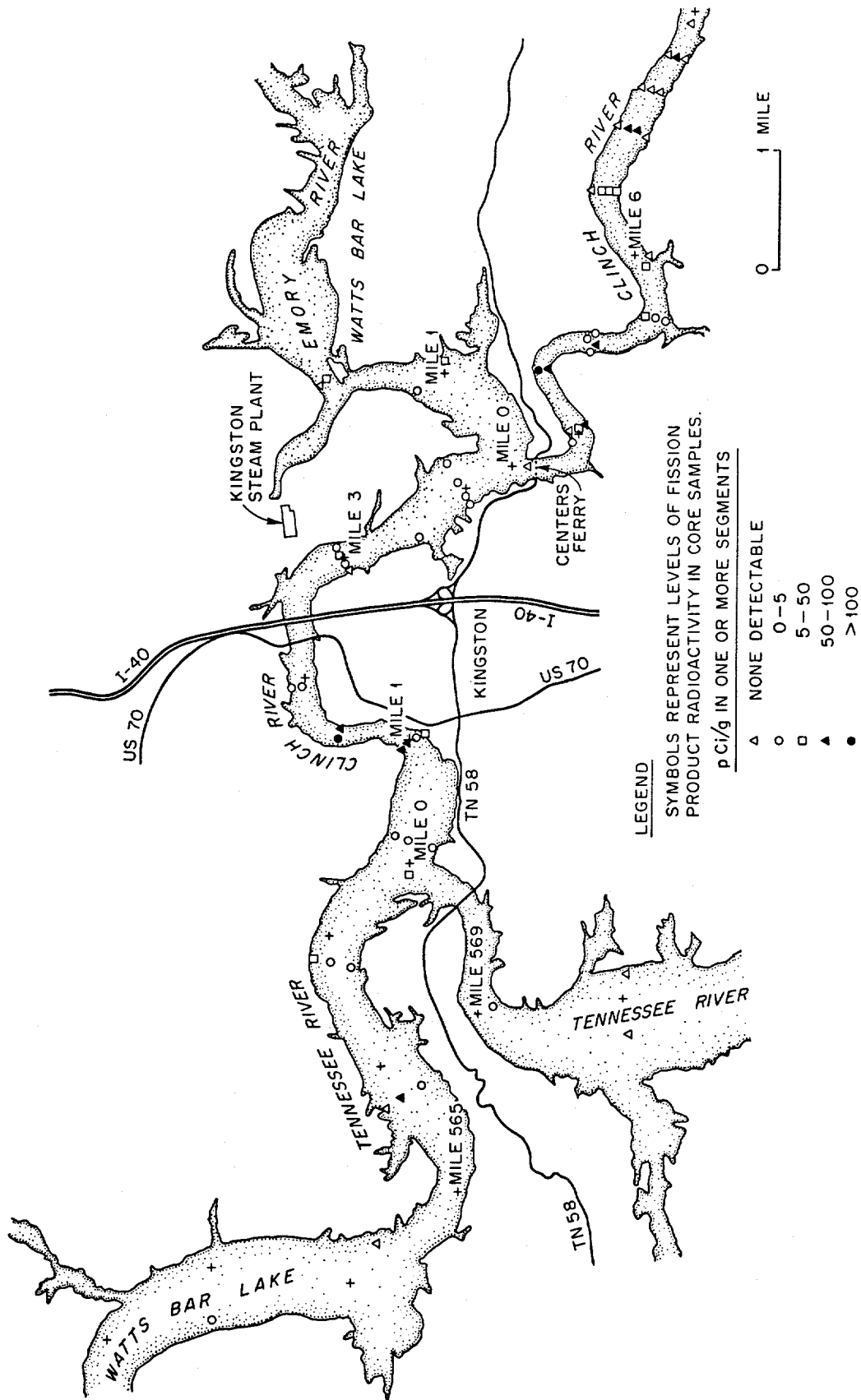


Fig. 21. Areas of deposition.

ORNL-DWG 81-19849

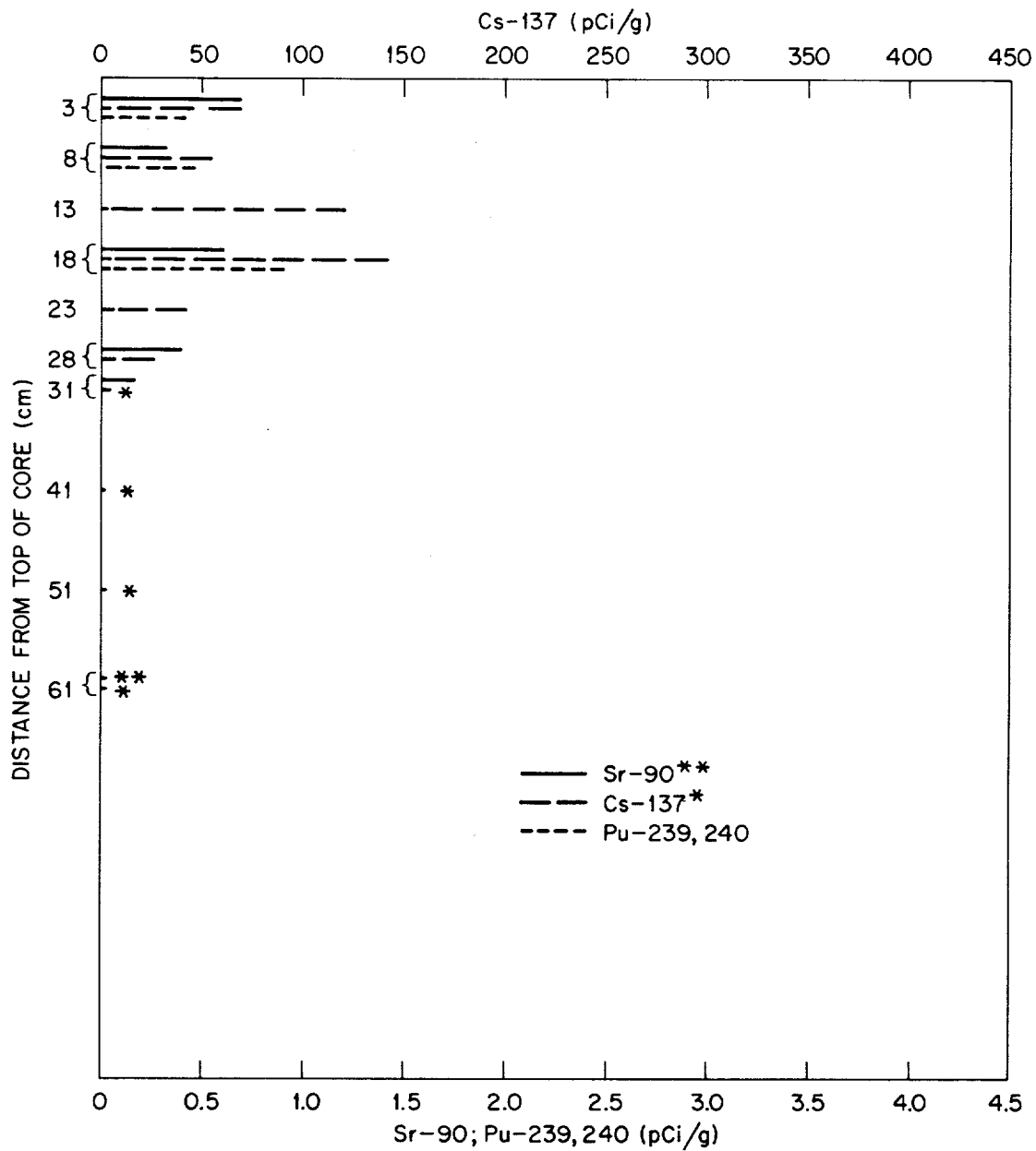


Fig. 22. Profile of radionuclide concentrations as a function of depth within the bottom sediment from a core taken at CRM 14.375—60 ft from the left bank. Data taken from Table A-103.

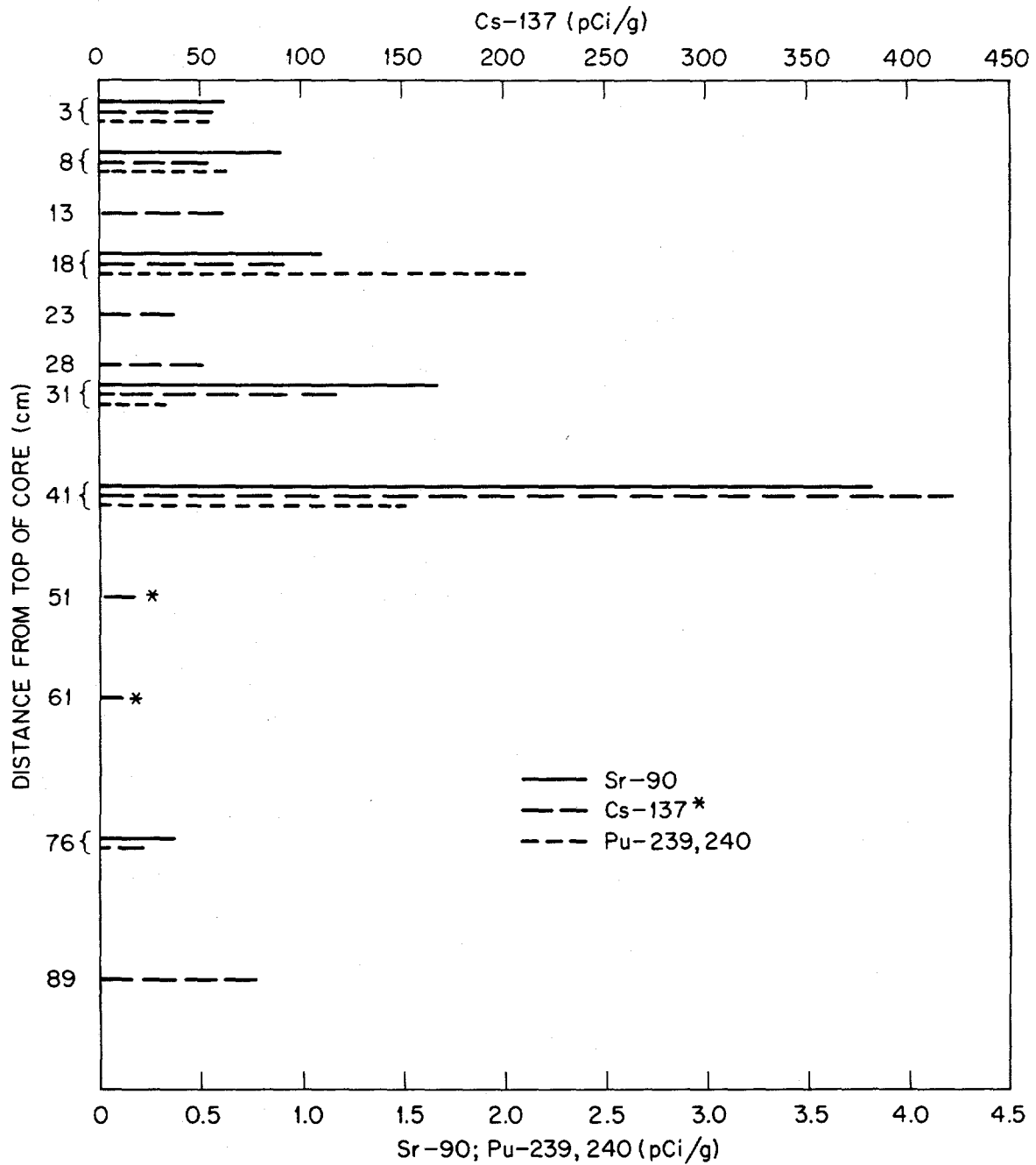


Fig. 23. Profile of radionuclide concentrations as a function of depth within the bottom sediment from a core taken at CRM 11.5—30 ft from the left bank. Data taken from Table A-146, Appendix A.

16-in. (41-cm) depth. Maximal ^{90}Sr concentration (solid line) also occurred at the 16-in. (41-cm) depth with a value of 3.8 pCi/g (0.14 Bq/g). On the other hand, $^{239,240}\text{Pu}$ concentrations were greatest at a depth of 18 cm [2.1 pCi/g (0.078 Bq/g)] followed by a secondary maximum of 1.5 pCi/g (0.056 Bq/g) at the 16-in. (41-cm) sample point. Americium-241 was qualitatively identified at depths of 3, 7, and 12 in. (8, 18, and 31 cm) via detection of its characteristic 60-keV x ray.

A third depth profile is shown in Fig. 24. Distribution patterns for radionuclides in this core taken at CRM 5.5—150 ft (45.5 m) from the left bank (Table A-203, Appendix A)—show single maxima for ^{137}Cs [181 pCi/g (6.70 Bq/g)] and ^{90}Sr [2.7 pCi/g (0.10 Bq/g)] at the 11-in. (28-cm) depth in the sediment. The $^{239,240}\text{Pu}$ maximum concentration, on the other hand, occurs at the 7-in. (18-cm) depth. This core location is approximately 15.3 river miles downstream from the outfall of WOC, but about 1 mile (0.6 km) upstream from the Center's Ferry river sampling point.

From the discussion of activity profiles as exemplified by cores at CRM 14.375, CRM 11.5, and CRM 5.5, complex sedimentation histories are present within the Clinch River bottom materials. Estimations of total inventories for fission product and transuranic nuclides in the Clinch River Basin will require judicious estimates of total sediment profiles as well as hydrological conditions on a point-by-point basis. Future sampling programs similar to the present study should show evidence of sedimentation movement. A subsequent report will attempt to address the significance of the measured activities.

12.2 Summary of Analytical Methods and Results

Samples from cores in the Clinch River Basin inventory study were analyzed by high-resolution gamma-ray spectroscopy (^{137}Cs and ^{60}Co) and by specific radiochemical determination (^{90}Sr , $^{239,240}\text{Pu}$, ^{241}Am , and ^{244}Cm). Data from all analyses performed on a given core are presented in tabular form along with sampling date and location. Arrangement of the tables is such that the uppermost reach cores are presented first. At a specific location, the core closest to the left bank (looking downstream) is given first, followed by the other two or three cores across the river with the core closest to the right bank being presented last.

Tabular data for cores collected in the Tennessee River follow those for the Clinch River. The Tennessee cores are also given in an upstream to downstream order. This procedure is also used for the few Emory River cores that follow the Tennessee River cores.

In a large number of cores in Appendix A, gamma-ray spectrometry was the only analysis performed. For those cores, data are given only in the ^{137}Cs and ^{60}Co columns with the following general guide: a dash (-) indicates that the nuclide, ^{137}Cs or ^{60}Co , was below the detection limit of 0.2–0.5 pCi/g (0.007–0.02 Bq/g). The word trace indicates positive identification of the nuclide but without a quantitative value. (These levels are approximately those at the detection limit.) Tabular data for ^{137}Cs and ^{60}Co at levels below 1 pCi/g (0.04 Bq/g) have an associated error estimate of $\pm 30\%$ due to counting statistics at the 1σ level of confidence. At 2 pCi/g (0.07 Bq/g) and above, counting statistics become less important than uncertainties because of geometry, density, etc. At the highest levels of activity [greater than 100 pCi/g (3.7 Bq/g)], the estimated overall uncertainty (standard deviation) is $\pm 6\%$.

Core samples analyzed for specific radionuclides via radiochemical separation are shown with numerical values within the tables for each specific radionuclide analysis. The absence of an entry indicates that the specific analysis was not performed. The overall precision of plutonium, ameri-

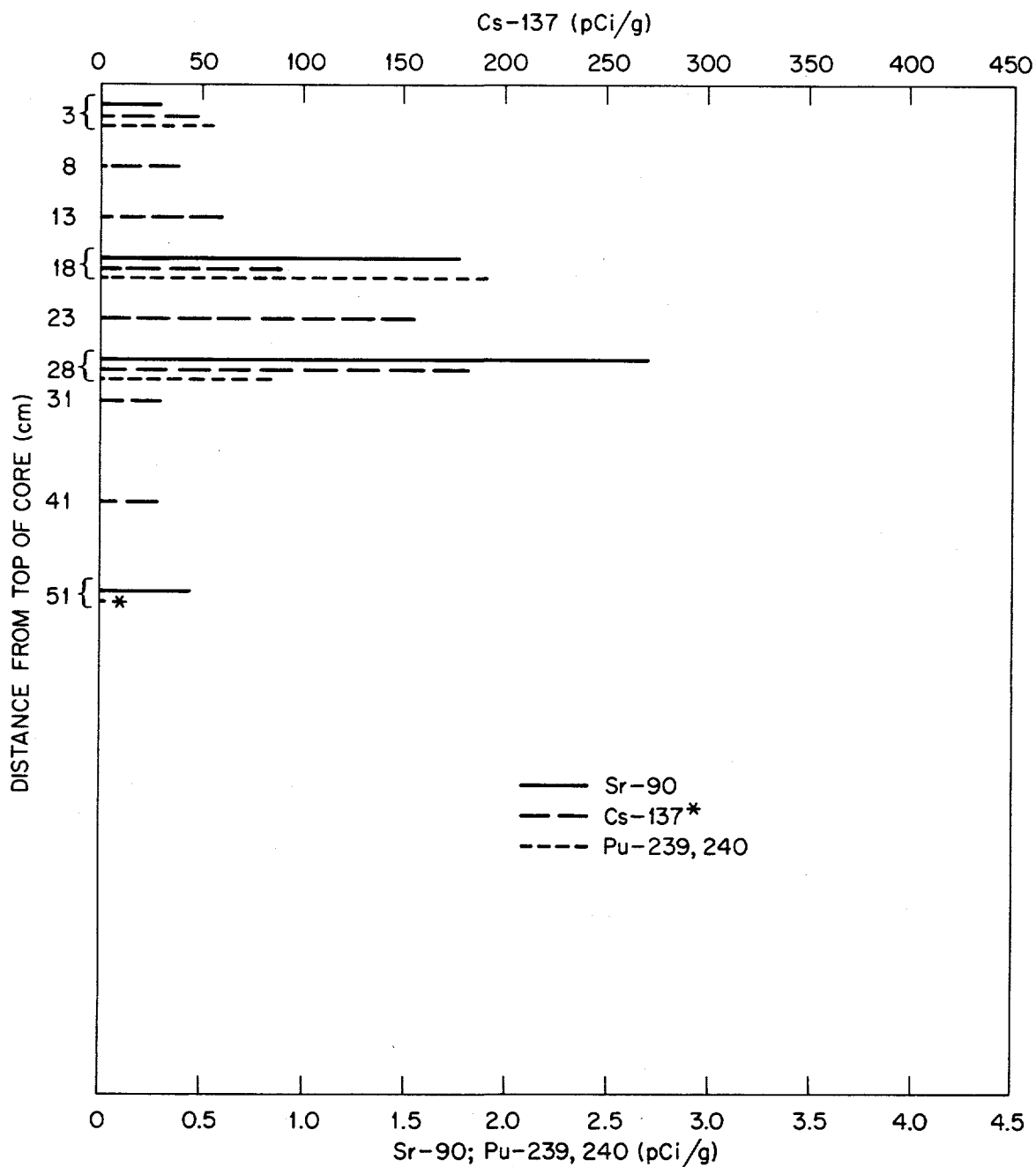


Fig. 24. Profile of radionuclide concentrations as a function of depth within the bottom sediment from a core taken at CRM 5.5-150 ft from the left bank. Data taken from Table A-203, Appendix A.

cium, and curium analyses is estimated to be $\pm 20\%$ at the 95% confidence level, while the ^{90}Sr analyses are estimated to be precise to $\pm 12\%$.

Radioactivity units are given as picocuries per gram on an oven-dried weight basis. To convert these values to units of becquerels per gram (1 becquerel equals 1 disintegration per second), each entry is multiplied by 0.037, since 1 picocurie equals 0.037 disintegration per second.

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Appendix A

CLINCH RIVER SEDIMENT DATA



CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 22.0, 50 ft. from right bank

SAMPLE NUMBER: 22.0-1, core length 234 cm

SAMPLE DATE: June 27, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.55	<0.0005	<0.0005	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.24	0.003	0.0009	
41	trace	-				
51	2.4	-				
61	trace	-				
76	-	-	0.16	<0.0009	0.0009	
79	-	-	0.20	0.0005	0.002	
84	-	-	0.17	0.0005	0.001	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.1

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 21.0, 28 ft. from right bank

SAMPLE NUMBER: 21.0-1, core length 256 cm

SAMPLE DATE: June 27, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.2

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 21.5, 85 ft. from right bank

SAMPLE NUMBER: 21.5-2, core length 91.4 cm

SAMPLE DATE: June 27, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.1	<0.0005	<0.0005	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.08	<0.0005	<0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-	0.07	<0.0005	0.0009	
91						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.3

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 21.5, 40 ft. from right bank

SAMPLE NUMBER: 21.5-1, core length 273 cm

SAMPLE DATE: June 27, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41						
51						
61						
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.4

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 21.0, 58 ft. from right bank

SAMPLE NUMBER: 21.0-2, core length 20.3 cm

SAMPLE DATE: June 28, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.5

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 35 ft. from center post in mouth of WOC.

SAMPLE NUMBER: 20.8-1, core length 25.4 cm

SAMPLE DATE: June 29, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	41.1	0.4				
8	1.6	-				
13	0.5	-				
18	0.9	-				
23	2.2	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.6

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 30 ft. from right bank

SAMPLE NUMBER: 20.8-A'-1, core length 12.7 cm

SAMPLE DATE: June 29, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	18.8	0.3				
8	-	-				
13	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 150' downriver from mouth of WOC.

Table A.7

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 15 ft. from left bank

SAMPLE NUMBER: 20.8-A-2, core length 96.5 cm

SAMPLE DATE: July 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
13	-	-				
23	-	-				
31						
33	-	-				
43	-	-				
53	trace	-				
64	-	-				
74	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 300 ft. downstream from WOC.

Table A.8

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 25 ft. from right bank

SAMPLE NUMBER: 20.8-A-1, core length 122 cm

SAMPLE DATE: June 30, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
18	-	-				
28	-	-				
38	-	-				
49	-	-				
58	-	-				
69	-	-				
89	-	-				
100	-	-				
109	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 300 ft. downstream from mouth of WOC.

Table A.9

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 30 ft. from right bank

SAMPLE NUMBER: 20.8-B-1, core length 8 cm

SAMPLE DATE: June 30, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 450 ft. downstream from mouth of WOC.

Table A.10

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 20 ft. from left bank

SAMPLE NUMBER: 20.8-C-2, core length 40.6 cm

SAMPLE DATE: July 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 750 ft. downstream from mouth of WOC.

Table A.11

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 25 ft. from right bank

SAMPLE NUMBER: 20.8-C-1, core length 91.4 cm

SAMPLE DATE: June 30, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	43.8	0.8				
8	65.1	1.2				
13	5.1	-				
18	-	-				
23	0.5	-				
28	-	-				
31	0.3	-				
41	-	-				
51	-	-				
61	-	-				
76	0.6	-				
91	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 750 ft. downstream from mouth of WOC.

Table A.12

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 30 ft. from right bank

SAMPLE NUMBER: 20.8-D-1, core length 137 cm

SAMPLE DATE: July 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	3.1	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	trace				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 900 ft. downstream from mouth of WOC.

Table A.13

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 15 ft. from left bank

SAMPLE NUMBER: 20.8-E-2, core length 83.8 cm

SAMPLE DATE: July 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	8.9	-	0.18	0.031		
8	0.05	-	0.55	0.0009		
23	-	-	0.23	<0.0004		
33	-	-	0.55	0.0004		
43	-	-	0.14	0.0007		
53	-	-	0.05	0.0009		
64	-	-	0.59	0.003		
73	-	-	0.09	0.002		

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1050 ft. downstream from WOC. Uranium concentration averaged 2.4 ppm and had natural isotopic composition.

Table A.14

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 40 ft. from right bank

SAMPLE NUMBER: 20.8-E-1, core length 127 cm

SAMPLE DATE: July 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1050 ft. downstream from mouth of WOC.

Table A.15

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 25 ft. from right bank

SAMPLE NUMBER: 20.8-F-1, core length 99 cm

SAMPLE DATE: July 5, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	5.8	0.4				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1200 ft. downstream from mouth of WOC.

Table A.16

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 20 ft. from right bank

SAMPLE NUMBER: 20.8-G-1, core length 92.7 cm

SAMPLE DATE: July 5, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.3	-				
8	-	-				
13	-	-				
18	1.1	-				
23	-	-				
28	-	-				
31	-	-				
41	trace	-				
51	1.1	-				
61	-	-				
76	-	-				
91	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1350 ft. downstream from mouth of WOC.

Table A.17

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 20 ft. from right bank

SAMPLE NUMBER: 20.8-G-2, core length 92.7 cm

SAMPLE DATE: July 5, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	3.9	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1350 ft. downstream from WOC.

Table A.18

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 25 ft. from right bank

SAMPLE NUMBER: 20.8-H-1, core length 77.5 cm

SAMPLE DATE: July 6, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1500 ft. downstream from mouth of WOC.

Table A.19

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 35 ft. from right bank

SAMPLE NUMBER: 20.8-J-1, core length 15.2 cm

SAMPLE DATE: July 6, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	trace	-				
13	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1650 ft. downstream from mouth of WOC.

Table A.20

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 20 ft. from right bank

SAMPLE NUMBER: 20.8-K-1, core length 40.6 cm

SAMPLE DATE: July 6, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1650 ft. downstream from mouth of WOC.

Table A.21

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 30 ft. from left bank

SAMPLE NUMBER: 20.8-L-2, core length 40.6 cm

SAMPLE DATE: July 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	35.7	0.8				
8	50.9	2.8				
13	44.4	-				
18	14.9	-				
23	5.0	-				
28	9.3	-				
31						
41						

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1800 ft. downstream from mouth of WOC.

Table A.22

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 16 ft. from right bank

SAMPLE NUMBER: 20.8-L-1, core length 122 cm

SAMPLE DATE: July 7, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	0.4	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1800 ft. downstream from mouth of WOC.

Table A.23

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 10 ft. from right bank

SAMPLE NUMBER: 20.8-M-1, core length 91.4 cm

SAMPLE DATE: July 7, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91						

Comments: Radioactivity units are pCi/g (dry weight).

Note: 1950 ft. downstream from mouth of WOC.

Table A.24

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 15 ft. from left bank

SAMPLE NUMBER: 20.8-N-1, core length 122 cm

SAMPLE DATE: July 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Note: 2100 ft. downstream from mouth of WOC.

Table A.25

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.8, 25 ft. from right bank

SAMPLE NUMBER: 20.8-N-2, core length 112 cm

SAMPLE DATE: July 7, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	3.6	-				
102	-	-				
114						

Comments: Radioactivity units are pCi/g (dry weight).

Note: 2100 ft. downstream from mouth of WOC.

Table A.26

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.0, 10 ft. from left bank

SAMPLE NUMBER: 20.0-2, core length 102 cm

SAMPLE DATE: July 13, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	~0.1	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91						
102						

Comments: Radioactivity units are pCi/g (dry weight).

Note: Around 1st bend of Jones Island.

Table A.27

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 20.0, 15 ft. from left bank

SAMPLE NUMBER: 20.0-1, core length 83.8 cm

SAMPLE DATE: July 13, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.20	-				
8						
13	-	-				
18						
23	-	-				
28						
31						
33	-	-				
41						
43	-	-				
51						
53	-	-				
61						
63	-	-				
74	-	-				
76						

Comments: Radioactivity units are pCi/g (dry weight).

Note: Around 1st bend of Jones Island.

Table A.28

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 19.5, 30 ft. from right bank

SAMPLE NUMBER: 19.5-1, core length 203 cm

SAMPLE DATE: July 13, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
64	-	-				
76	-	-				
89	-	-				
102	-	-				
140	-	-				
203	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.29

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 19.5, 15 ft. from right bank

SAMPLE NUMBER: 19.5-2, core length 183 cm

SAMPLE DATE: July 13, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.9	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41						
51						
61						
76						
91						
102						
107	-	-				
114						
183	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.30

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 19.0, 40 ft. from right bank

SAMPLE NUMBER: 19.0-1, core length 68.6 cm

SAMPLE DATE: July 14, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.7	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.31

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 18.5, 20 ft. from left bank

SAMPLE NUMBER: 18.5-2, core length 234 cm

SAMPLE DATE: July 14, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.6	0.001	0.003	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.7	<0.0005	<0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-	1.4	<0.0005	0.0009	
119	-	-				
157	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.32

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 18.5, 50 ft. from left bank

SAMPLE NUMBER: 18.5-1, core length 221 cm

SAMPLE DATE: July 14, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.23	<0.0005	0.002	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	2.0	0.0005	0.002	
41	-	-				
51	-	-				
61	-	-	0.30	0.001	0.002	
157	-	-				
221	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.33

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 18.5, 50 ft. from right bank of Grub Island

SAMPLE NUMBER: 18.5-3, core length 198 cm

SAMPLE DATE: July 15, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.6	0.0005	0.0009	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.7	<0.0009	0.001	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-	1.3	<0.0005	0.0009	
102						
112	-	-				
114						
135	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.34

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 18.5, 30 ft. from right bank

SAMPLE NUMBER: 18.5-5, core length 22.9 cm

SAMPLE DATE: July 15, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	trace	-	0.9	<0.0009	0.0009	
8	-	-				
13	-	-	0.12	0.0009	0.002	
18	-	-				
23	-	-	0.38	<0.0005	<0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.35

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 18.0, 30 ft. from left bank

SAMPLE NUMBER: 18.0-2, core length 196 cm

SAMPLE DATE: July 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	2.3	<0.0005	0.0009	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.36

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 18.0, 60 ft. from left bank

SAMPLE NUMBER: 18.0-1, core length 86.4 cm

SAMPLE DATE: July 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.10	<0.001	0.005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-	0.10	0.002	<0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.37

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.75, 30 ft. from left bank

SAMPLE NUMBER: 17.75-1, core length 107 cm

SAMPLE DATE: July 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.38

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.75, 20 ft. from right bank

SAMPLE NUMBER: 17.75-2, core length 83.8 cm

SAMPLE DATE: July 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.39

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.75, 10 ft. from right bank

SAMPLE NUMBER: 17.75-3, core length 48.3 cm

SAMPLE DATE: July 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.40

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.5, 40 ft. from left bank

SAMPLE NUMBER: 17.5-4, core length 178 cm

SAMPLE DATE: July 20, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	8.2	-	0.08	0.050	0.002	
8	3.4	-				
13	9.6	-	0.63	0.043	0.003	
18	8.8	-				
23	15.5	-	0.37	0.020	0.001	
28	6.9	-				
31	5.6	-	0.13	0.003	<0.0009	
33	6.6	-				
81	-	-				
158	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.41

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.5, 100 ft. from left bank

SAMPLE NUMBER: 17.5-3, core length 91.4 cm

SAMPLE DATE: July 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3						
8	1.1	-	0.34	0.003	<0.0005	
13						
18	1.0	-	0.7	0.009	0.0005	
23						
28						
31						
41						
51						
61						
76						
91						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.42

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.5, 18 ft. from right bank

SAMPLE NUMBER: 17.5-1, core length 196 cm

SAMPLE DATE: July 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.8	0.20	0.27	0.002	0.002	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	1.2	<0.0005	<0.0005	
41	-	-				
51	-	-	0.3	0.0005	0.002	
114	-	-				
178	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.43

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.25, 20 ft. from left bank

SAMPLE NUMBER: 17.25-2, core length 76.2 cm

SAMPLE DATE: July 20, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
74	-	-				
76						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.44

CLINCH RIVER BASIN INVENTORY

LOCATION: GRM 17.25, 45 ft. from left bank

SAMPLE NUMBER: 17.25-1, core length 132 cm

SAMPLE DATE: July 20, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.9	0.3	1.0	0.011	0.003	
8	0.6	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.45

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.25, 45 ft. from right bank

SAMPLE NUMBER: 17.25-3, core length 76.2 cm

SAMPLE DATE: July 20, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.19	0.002	<0.0009	0.02
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-	0.30	<0.001	0.001	
31	-	-				
41	-	-				
51	-	-				
61*	-	-	0.09	<0.0009	<0.0009	0.009

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was identified by gamma scan.

Table A.46

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.25, 20 ft. from right bank

SAMPLE NUMBER: 17.25-4, core length 68.6 cm

SAMPLE DATE: July 20, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.47

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.0, 15 ft. from left bank

SAMPLE NUMBER: 17.0-3, core length 66.0 cm

SAMPLE DATE: July 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.5	<0.0005		
8	-	-				
13	-	-	0.3	0.0009		
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-	0.2	0.0003		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.48

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.0, 35 ft. from left bank

SAMPLE NUMBER: 17.0-4, core length 78.7 cm

SAMPLE DATE: July 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.2	0.0001		
8	-	-				
13	-	-	0.3	0.0002		
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-	0.3	0.0002		
76						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.49

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.0, 40 ft. from right bank

SAMPLE NUMBER: 17.0-2, core length 53.3 cm

SAMPLE DATE: July 21, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	1.3	0.0009	0.0009	
41	-	-	0.5	<0.0009	0.002	
51						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.50

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 17.0, 25ft. from right bank

SAMPLE NUMBER: 17.0-1, core length 61.0 cm

SAMPLE DATE: July 21, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.8	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.39	0.002	0.002	
41	-	-				
51	-	-				
61	-	-	0.13	0.005	0.004	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.51

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.75, 35ft. from right bank

SAMPLE NUMBER: 16.75-2, core length 147 cm

SAMPLE DATE: July 26, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31*	-	-	0.09	0.002	0.002	0.007
41	-	-				
51	-	-				
61	-	-				
76*	-	-	0.36	<0.0005	0.002	
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was identified by gamma scan.

Table A.52

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.75, 25ft. from right bank

SAMPLE NUMBER: 16.75-1, core length 76.2 cm

SAMPLE DATE: July 25, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.53

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.5, 35ft. from left bank

SAMPLE NUMBER: 16.5-3, core length 112 cm

SAMPLE DATE: July 26, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	12.5	0.5	0.35	0.070	0.003	
8	5.2	0.5	0.2	0.020	0.002	
13	14.0	trace				
18	33.3	-				
23	16.7	-				
28	4.0	-				
31	0.8	-	0.009	0.007	<0.0009	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.54

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.5, 50ft. from left bank

SAMPLE NUMBER: 16.5-4, core length 226 cm

SAMPLE DATE: July 26, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.3	<0.0005	<0.0005	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	9.0	0.0005	0.002	
41	-	-				
51	-	-				
61	-	-	0.9	0.0009	0.002	
74	-	-				
76						
91						
102						
114						
124	-	-				
188	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.55

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.5, 60ft. from right bank

SAMPLE NUMBER: 16.5-1, core length 229 cm

SAMPLE DATE: July 26, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	12.0	1.6	1.0	0.140	0.003	
8	13.0	<1.				
13	10.1	0.3				
18	12.6	-				
23	21.5	-	0.8	0.060	0.002	
28						
31	31.7	-				
38	40.1	-				
46	61.2	-	0.5	0.010	0.001	
53	16.4	-				
61						
64	1.8	-	0.22	0.006	0.0009	
74						
76	1.6	-				
84	4.0	-				
86	4.9	-				
91						
94	trace	-				
102						
107	-	-				
114						
122	trace	-				
142	-	-				

Comments: Radioactivity units are pCi/g (dry weight).
 U-NAT. = 3.6 ppm in segment 17.8 cm.

Table A.56

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.5, 20ft. from right bank

SAMPLE NUMBER: 16.5-2, core length 267 cm

SAMPLE DATE: July 26, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	12.5	0.6	0.7	0.050	0.0009	
8	31.5	-				
13	6.0	-	0.5	0.016	0.005	
15	-	-				
20	1.2	-				
23						
28						
31	-	-				
38	-	-				
41						
43	-	-				
51	-	-				
53						
61						
76	-	-				
91	-	-	0.07	<0.002	<0.002	
99	-	-				
102						
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.57

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.25, 30ft. from left bank

SAMPLE NUMBER: 16.25-1, core length 122 cm

SAMPLE DATE: July 27, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	4.4	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.58

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.25, 45ft. from left bank

SAMPLE NUMBER: 16.25-2, core length 117 cm

SAMPLE DATE: July 27, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	15.2	-	0.22	0.110	0.007	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.59

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.25, 40ft. from right bank

SAMPLE NUMBER: 16.25-4, core length 114 cm

SAMPLE DATE: July 27, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.0	-	0.02	0.008	0.002	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.60

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.25, 20ft. from right bank

SAMPLE NUMBER: 16.25-3, core length 152 cm

SAMPLE DATE: July 27, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.61

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.0, 20ft. from left bank

SAMPLE NUMBER: 16.0-2, core length 152 cm

SAMPLE DATE: July 28, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.5	0.0005		
8	-	-				
13	-	-	0.3	0.001		
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-	0.3	0.0005		
76	-	-				
91	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.62

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.0, 40ft. from left bank

SAMPLE NUMBER: 16.0-1, core length 152 cm

SAMPLE DATE: July 28, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.63

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.0, 80ft. from right bank

SAMPLE NUMBER: 16.0-4, core length 218 cm

SAMPLE DATE: July 29, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	45.5	2.3	2.9	0.270	<0.005	
8	20.1	1.2				
13	29.4	1.5				
18	6.8	0.6				
23	4.7	0.6				
28	18.5	2.7				
31	28.0	3.5	1.7	0.310	<0.005	
41	6.1	0.6				
51	15.1	0.5				
61	65.5	-	1.2	0.070	<0.005	
76	25.4	-				
84	76.0	-	0.8	0.005	<0.005	
89	21.8	-				
94	215.	-	0.5	0.030	<0.005	
99	86.4	-				
104	61.0	-				
107	8.4	-				
117	2.0	-				
127	1.3	-				
137	4.7	-	0.5	0.030	<0.005	
152	-	-				
168	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.64

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 16.0, 40ft. from right bank

SAMPLE NUMBER: 16.0-3, core length 279 cm

SAMPLE DATE: July 29, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	218	3.6	2.7	0.630	0.030	
8	34.7	1.5		0.210	0.005	
13	23.0	1.2		0.170	0.004	
18	5.8	0.6		0.050	0.004	
23	9.7	1.4		0.210	0.004	
28	10.9	1.8		0.120	0.004	
31	17.8	2.0		0.100	0.003	
41	18.3	0.7		0.100	0.003	
51	18.1	-		0.030	0.0009	
61	60.4	-	0.9	0.030	<0.005	
76	31.8	-		0.015	<0.005	
91	20.6	-	0.4	0.005	<0.005	
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.65

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.875 50 ft. from right bank

SAMPLE NUMBER: 15.875-1, core length 147 cm

SAMPLE DATE: August 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				
196	-	-				
264	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.66

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.875 25 ft. from right bank

SAMPLE NUMBER: 15.875-2, core length 224 cm

SAMPLE DATE: August 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	6.8	-				
8	8.7	-				
13	trace	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.67

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.75 30 ft. from right bank

SAMPLE NUMBER: 15.75-2, core length 107 cm

SAMPLE DATE: August 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.2	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.68

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.625 30 ft. from right bank

SAMPLE NUMBER: 15.625-1, core length 22.9 cm

SAMPLE DATE: August 2, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	2.2	0.2				
8	0.2	-				
13	-	-				
18	-	-				
23	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.69

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.5 35 ft. from right bank

SAMPLE NUMBER: 15.5-1, core length 73.7 cm

SAMPLE DATE: August 2, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.5	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41*	-	-	0.11	<0.0009	<0.002	0.009
51	-	-				
61	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was identified by gamma scan.

Table A.70

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.375 40 ft. from right bank

SAMPLE NUMBER: 15.375-1, core length 208 cm

SAMPLE DATE: August 2, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				
142	-	-				
170	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.71

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.375 15 ft. from right bank

SAMPLE NUMBER: 15.375-2, core length 191 cm

SAMPLE DATE: August 2, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	trace	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61						
76						
91						
102						
114						
117	-	-				
170	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.72

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.25 50 ft. from right bank

SAMPLE NUMBER: 15.25-1, core length 27.9 cm

SAMPLE DATE: August 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.73

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.25 25 ft. from right bank

SAMPLE NUMBER: 15.25-2, core length 178 cm

SAMPLE DATE: August 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.74

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.125 45 ft. from right bank

SAMPLE NUMBER: 15.125-1, core length 157 cm

SAMPLE DATE: August 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.1	-	0.14	0.002	0.003	
8	-	-				
13	-	-	0.2	<0.0009	0.0009	
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.75

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.125 20 ft. from right bank

SAMPLE NUMBER: 15.125-2, core length 178 cm

SAMPLE DATE: August 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.76

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.0 30 ft. from left bank

SAMPLE NUMBER: 15.0-1, core length 168 cm

SAMPLE DATE: August 4, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.10	<0.0005	0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-	0.63	<0.0005	0.0009	
102	-	-				
112	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.77

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.0 50 ft. from left bank

SAMPLE NUMBER: 15.0-2, core length 61.0 cm

SAMPLE DATE: August 4, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	42.6	1.6	0.7	0.200	0.005	
8	10.4	1.0				
13	11.8	1.2				
18	17.4	-				
23	23.5	-	1.2	0.030	<0.005	
28	11.8	-				
31	26.3	-	0.7	0.005	<0.005	
41	1.9	-				
51	-	-				
61						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.78

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.0 30 ft. from right bank

SAMPLE NUMBER: 15.0-3, core length 145 cm

SAMPLE DATE: August 4, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.04	0.005	0.005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-	0.08	0.0005	0.0009	
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.79

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 15.0 15 ft. from right bank

SAMPLE NUMBER: 15.0-4, core length 227 cm

SAMPLE DATE: August 4, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91						
102						
114						
142	-	-				
211	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.80

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.875 25 ft. from left bank

SAMPLE NUMBER: 14.875-1, core length 191 cm

SAMPLE DATE: August 5, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	4.8	-				
8	-	-				
13	-	-				
18	trace	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
48	-	-				
51						
61						
76						
91						
102						
114	-	-				
183	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.81

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.875 45 ft. from left bank

SAMPLE NUMBER: 14.875-2, core length 269 cm

SAMPLE DATE: August 5, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	16	0.7	0.7	0.100	0.010	
8	23.9	-	0.4	0.020	0.004	
13	1.4	-				
18	-	-				
23	-	-				
28	-	-				
31	0.5	-	0.19	0.0009	0.002	
41	-	-				
48						
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	0.4	-	0.05	0.002	0.002	
178	-	-				
239	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.82

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.875 25 ft. from right bank

SAMPLE NUMBER: 14.875-3, core length 88.9 cm

SAMPLE DATE: August 5, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	4.9	0.6				
8	0.5	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
48						
51	-	-				
61	-	-				
76	trace	-				
91						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.83

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.875 10 ft. from right bank

SAMPLE NUMBER: 14.875-4, core length 160 cm

SAMPLE DATE: August 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.4	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31						
41						
51						
61						
76						
84	-	-				
91						
102						
114						
142	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.84

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.75 15 ft. from left bank

SAMPLE NUMBER: 14.75-4, core length 68.6 cm

SAMPLE DATE: August 9, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.85

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.75 30 ft. from left bank

SAMPLE NUMBER: 14.75-3, core length 152 cm

SAMPLE DATE: August 9, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.86

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.75 20 ft. from right bank

SAMPLE NUMBER: 14.75-1, core length 62.2 cm

SAMPLE DATE: August 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.3	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.87

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.75 10 ft. from right bank

SAMPLE NUMBER: 14.75-2-1, core length 244 cm

SAMPLE DATE: August 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	0.6	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51						
61						
76						
91						
102						
104	-	-				
114						
170	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.88

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.625 20 ft. from left bank

SAMPLE NUMBER: 14.625-2, core length 117 cm

SAMPLE DATE: August 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.89

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.625 40 ft. from left bank

SAMPLE NUMBER: 14.625-1, core length 22.9 cm

SAMPLE DATE: August 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.90

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.625 50 ft. from right channel bank

SAMPLE NUMBER: 14.625-3, core length 157 cm

SAMPLE DATE: August 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61						
76						
91						
102	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.91

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.625 30 ft. from right channel bank

SAMPLE NUMBER: 14.625-4, core length 173 cm

SAMPLE DATE: August 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51						
61						
76						
91						
94	trace	-				
102						
114						
150	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.92

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.625 40 ft. from right inlet bank

SAMPLE NUMBER: 14.625-6, core length 61.0 cm

SAMPLE DATE: August 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.7	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	trace	-				
61	trace	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.93

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.625 30 ft. from right inlet bank

SAMPLE NUMBER: 14.625-5, core length 78.7 cm

SAMPLE DATE: August 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	trace	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.94

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.5 25 ft. from left bank

SAMPLE NUMBER: 14.5-4, core length 152 cm

SAMPLE DATE: August 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	34.2	1.9	0.3	0.310	0.030	
8	68.8	1.2				
13	65.3	1.0	0.4	0.370	0.010	
18	13.6	0.8				
23	49.1	-	0.6	0.040	0.0009	
28	18.8	-				
31	3.4	-				
41	0.9	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.95

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.5 25ft. from left bankSAMPLE NUMBER: 14.5-4?, core length 152 cm

SAMPLE DATE: August 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.9	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102						
107	-	-				
114						

Comments: Radioactivity units are pCi/g (dry weight).

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.5 55 ft. from left bank

SAMPLE NUMBER: 14.5-3 , core length 73.7 cm

SAMPLE DATE: August 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.40	-	0.07	0.004	0.005	
8	0.20	-	0.12	0.002	0.004	
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.05	0.002	0.001	
41	-	-				
51	-	-				
61	-	-				
74	-	-	0.12	<0.0005	0.0009	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.97

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.5 45 ft. from right bank

SAMPLE NUMBER: 14.5-1, core length 225 cm

SAMPLE DATE: August 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.5	-	0.05	0.010	<0.001	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.6	0.0005	<0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-	<0.10	<0.001	0.0009	
102						
114						
155	-	-				
221	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.98

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.5 25 ft. from right bank

SAMPLE NUMBER: 14.5-2, core length 175 cm

SAMPLE DATE: August 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	23.9	1.4	0.8	0.360	0.030	
8	1.8	-	0.2	0.030	0.005	
13	trace	-				
18	0.6	-	0.15	0.004	0.0009	
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).
 U-NAT. = 2.9 ppm in 2.5 cm segment.

Table A.99

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.375, 25 ft. from left bank

SAMPLE NUMBER: 14.375-2, core length 218 cm

SAMPLE DATE: August 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	10.8	0.5	0.08	0.070	0.010	
8	35.8	1.1				
13	58.6	1.4	0.40	0.240	0.010	
18	34.8	0.9				
23	11.3	1.8				
28	10.7	0.6				
31	17.9	0.6	0.8	0.100	0.002	
41	28.7	-	0.19	0.020	0.001	
51	23.1	-				
61	0.4	-	0.19	0.0005	<0.0005	
76	-	-				
91	-	-				
102	-	-	0.45	0.003		0.003
114	-	-				
140	-	-				
178	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.100

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.375, 60 ft. from left bank

SAMPLE NUMBER: 14.375-1, core length 163 cm

SAMPLE DATE: August 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	68.7	4.5	0.68	0.410	0.040	
8	54.6	2.4	0.32	0.460	0.030	
13	120	2.1				
18	141	3.1	0.6	0.900	0.050	
23	40.2	0.9				
28	25.7	-	0.38	0.050	0.003	
31	4.0	-	0.16	0.010	0.003	
41	0.5	-				
51	0.4	-				
61	0.30	-	0.04	0.004	0.004	
74	-	-				
76						
91						
102						
112	-	-				
114						
137	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.101

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.375, 200 ft. from right bank

SAMPLE NUMBER: 14.375-3, core length 88.9 cm

SAMPLE DATE: August 12, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.6	-	0.12	0.001	0.004	
8	-	-				
13	-	-	0.23	0.001	0.002	
18	trace	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.102

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.375, 100 ft. from right bank

SAMPLE NUMBER: 14.375-4, core length 191 cm

SAMPLE DATE: August 12, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	25.6	1.0				
8	2.5	-				
13	1.0	-				
18	0.4	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51						
61						
76						
91						
102						
109	-	-				
114						
178	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.103

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.375, 45 ft. from right bank

SAMPLE NUMBER: 14.375-5, core length 124 cm

SAMPLE DATE: August 12, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	5.4	-	0.28	0.040	0.006	
8	-	-				
13	-	-	0.16	<0.0005	0.0005	
18	-	-				
23	-	-				
28	-	-	0.14	0.0005	0.002	
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.104

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.25, 10 ft. from left bank

SAMPLE NUMBER: 14.25-1, core length 50.8 cm

SAMPLE DATE: August 15, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.6	-	0.25	0.011	0.008	
8	-	-				
13	-	-	0.23	<0.0005	<0.0005	
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.105

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.25, 40 ft. from left bank

SAMPLE NUMBER: 14.25-2-1, core length 422 cm

SAMPLE DATE: August 15, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	83.9	1.6	1.4	0.70	0.050	
8	178	2.7		2.30	0.150	
13	153	1.2		0.360	0.009	
18	299	3.1	2.6	0.900	0.020	
23	151	2.7		0.450	0.010	
28	606	10.7		2.10	0.080	
31	516	10.9	4.8	1.80	0.070	
41	33.0	1.9		0.250	0.004	
51	18.1	2.2		0.150	0.004	
61	103	-	1.2	0.80	0.001	
76	3.8	-		0.040	<0.0009	
91	0.5	-		0.003	<0.0009	
102	-	-				
114						
178	-	-				
254	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.106

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.25, 65 ft. from right bank

SAMPLE NUMBER: 14.25-4, core length 45.7 cm

SAMPLE DATE: August 16, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	trace	-	0.16	<0.9	0.0009	
8	0.30	-	0.42	<0.0005	<0.0005	
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	trace	-				
41	5.4	-	0.5	0.010	<0.0009	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.107

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.25, 20 ft. from right bank

SAMPLE NUMBER: 14.25-3, core length 311 cm

SAMPLE DATE: August 15, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
	.9	1.3	0.29	0.125	0.020	
8	18.4	0.8	0.11	0.100	0.010	
13	35.8	0.6	0.95	0.320	0.030	
18	207.	2.5	2.1	0.820	0.040	0.32
23	149.	1.3	1.3	0.400	0.010	
28	274	12.2	2.8	0.750	0.030	0.11
31	24.8	1.4	1.3	0.180	0.002	
41	30.1	-				
51	trace	-				
61	0.5	-	0.24	0.003	0.002	
76	-	-				
91	-	-				
102	1.0	-	0.05	0.010	0.004	
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.108

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.125, 20 ft. from left bank

SAMPLE NUMBER: 14.125-2, core length 152 cm

SAMPLE DATE: August 16, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.8	-	0.7	0.005	0.0009	
8	-	-				
13	-	-	≤ 0.09	0.0005	0.0009	
18	0.20	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.109

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.125, 75 ft. from left bank

SAMPLE NUMBER: 14.125-1, core length 96.4 cm

SAMPLE DATE: August 16, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91						
102						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.110

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.0, 45 ft. from left bank

SAMPLE NUMBER: 14.0-1, core length 251 cm

SAMPLE DATE: August 16, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	32.4	0.8	0.5	0.230	0.030	
8*	44.1	1.8	0.4	0.370	0.030	0.24
13	85.9	2.0	0.6	0.670	0.040	
18	71.6	1.4	0.7	0.950	0.060	
23*	172.	1.3	2.8	6.45	0.48	3.4
28	237.	2.9	1.6	0.840	0.030	
31	131.	1.7	1.8	0.410	0.010	
41	127.	3.4	1.3	0.450	0.020	
51	10.3	1.5	1.3	0.160	0.004	
61*	12.4	0.6	0.6	0.110	0.003	0.03
76	83.7	-	1.0	0.100	0.0009	
91	35.3	-	0.3	0.009	<0.0009	
102						
104	3.5	-				
114						
155	-	-				
193	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was identified by gamma scan.

Table A.111

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 14.0, 10 ft. from right bank

SAMPLE NUMBER: 14.0-3, core length 63.5 cm

SAMPLE DATE: August 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.9	-	0.38	0.003	0.002	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.28	0.0005	0.0005	
41	-	-				
51	-	-				
61	-	-	0.17	<0.0009	0.0009	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.112

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.5, *ft. from left bank

SAMPLE NUMBER: 13.5-1, core length 76.2 cm

SAMPLE DATE: August 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	16.6	0.4	1.1	0.050	0.002	
8	-	-				
13	0.3	-				
18	0.5	-				
23	-	-				
28	-	-				
31	-	-	0.21	<0.0005	0.001	
41	-	-				
51	-	-				
61	-	-				
76	-	-	0.12	<0.0005	0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

* Center position at head of backwater cove.

Table A.113

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.5, 50 ft. from left bank

SAMPLE NUMBER: 13.5-2, core length 152 cm

SAMPLE DATE: August 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.07	0.001	0.001	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.07	<0.0009	0.003	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.39	0.002	0.003	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.114

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.5, 80 ft. from left bank

SAMPLE NUMBER: 13.5-3, core length 356 cm

SAMPLE DATE: August 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	34.5	trace	1.5	0.050	0.0012	
8	29.6	-	0.9	0.014	0.0009	
13	5.5	-				
18	2.6	-				
23	0.4	-				
28	-	-				
31	-	-				
41	0.4	-	0.30	<0.0005	0.002	
51	-	-				
61	-	-				
76	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.115

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.5, 45 ft. from right bank

SAMPLE NUMBER: 13.5-4, core length 218 cm

SAMPLE DATE: August 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	2.5	0.6	0.05	0.020	0.003	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.1	<0.0005	0.001	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.09	<0.0005	<0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.116

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.5, 25 ft. from right bank

SAMPLE NUMBER: 13.5-5, core length 137 cm

SAMPLE DATE: August 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.16	0.0005	<0.0005	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	1.9	0.0005	0.003	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.28	<0.0005	0.001	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.117

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.75, *ft. from left bank

SAMPLE NUMBER: 13.75-4, core length 102 cm

SAMPLE DATE: August 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	13.9	0.6	0.14	0.040	0.002	
8	6.0	-				
13	1.9	-				
18	0.1	-	2.2	<0.0005	<0.0005	
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
86	-	-				
91						
99	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

* In center of backwater cove; left hand side of river.

Table A.118

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.75, 30 ft. from left bank

SAMPLE NUMBER: 13.75-3, core length 109 cm

SAMPLE DATE: August 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.119

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.75, 25 ft. from right bank

SAMPLE NUMBER: 13.75-2, core length 71.1 cm

SAMPLE DATE: August 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	0.2	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.120

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.75, 10 ft. from right bank

SAMPLE NUMBER: 13.75-1, core length 330 cm

SAMPLE DATE: August 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.8	-				
8	2.0	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	trace	-				
41	-	-				
51	-	-				
61						
76						
91						
102						
104	-	-				
114						
180	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.121

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.25, 15 ft. from left bank

SAMPLE NUMBER: 13.25-4, core length 274 cm

SAMPLE DATE: August 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.122

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.25, 50 ft. from left bank

SAMPLE NUMBER: 13.25-3, core length 377 cm

SAMPLE DATE: August 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	trace	-	0.37	<0.0005	<0.0005	trace
8	-	trace				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.25	0.0005	0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
86	-	-	0.39	<0.0005	<0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.123

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.25, 45 ft. from right bank

SAMPLE NUMBER: 13.25-1, core length 305 cm

SAMPLE DATE: August 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.124

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.25, 20 ft. from right bank

SAMPLE NUMBER: 13.25-2, core length 272 cm

SAMPLE DATE: August 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.125

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.0, 30 ft. from left bank

SAMPLE NUMBER: 13.0-2, core length 207 cm

SAMPLE DATE: August 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	-	-	0.16	0.003	0.003		
8	-	-					
13	-	-					
18*	-	-	0.12	<0.0005	<0.0005	0.016	0.017
23	-	-					
28	-	-					
31	-	-					
41	-	-					
51	-	-	0.02	<0.0009	0.0009		

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was detected by gamma scan.

Table A.126

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.0, 60 ft. from left bank

SAMPLE NUMBER: 13.0-1, core length 135 cm

SAMPLE DATE: August 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.4	-	0.95	0.009	0.005	
8	2.0	-				
13	0.7	-				
18	trace	-				
23	-	-				
28	-	-				
31	-	-	0.15	0.0009	0.002	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.5	<0.001	0.002	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.127

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.0, 45 ft. from right bank

SAMPLE NUMBER: 13.0-3, core length 137 cm

SAMPLE DATE: August 23, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.4	-	0.5	0.007	<0.0005	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	0.17	<0.0009	0.002		
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.12	<0.0009	<0.0009	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.128

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 13.0, 15 ft. from right bank

SAMPLE NUMBER: 13.0-4, core length 254 cm

SAMPLE DATE: August 23, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	4.8	-	0.23	0.005	0.003	
8	-	-				
13	0.5	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	<0.10	<0.0009	0.002	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.11	0.004	0.013	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.129

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.75, 15 ft. from left bank

SAMPLE NUMBER: 12.75-1, core length 152 cm

SAMPLE DATE: August 23, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.130

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.75, 100 ft. from right bank

SAMPLE NUMBER: 12.75-3, core length 206 cm

SAMPLE DATE: August 23, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	19.	0.43	0.38	0.21	0.013	
8	19.	-				
13	30	-				
18	70.	-	0.59	0.068	0.0005	
23	32	-				
28	120.	-	1.6	0.13	0.0003	
31	110	-				
41	62.	-	0.38	0.049	<0.0003	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.131

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.75, 25 ft. from right bank

SAMPLE NUMBER: 12.75-2, core length 338 cm

SAMPLE DATE: August 23, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	46.	0.97				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61						
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.132

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.5, 55 ft. from right bank

SAMPLE NUMBER: 12.5-1, core length 127 cm

SAMPLE DATE: August 25, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	46.1	1.6	3.1	0.170	0.013	
8	123.	3.3	1.8	0.510	0.018	
13	15.9	2.4				
18	2.4	-				
23	1.4	-				
28	-	-				
31	0.4	-	0.05	0.004	0.0009	
41	0.2	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.10	<0.0005	0.001	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.133

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.5, 25 ft. from right bank

SAMPLE NUMBER: 12.5-2, core length 249 cm

SAMPLE DATE: August 25 , 1970

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	6.8	-				
8	8.6	-				
13	30.0	1.5				
18	11.0	1.2				
23	15.0	1.5				
28	8.6	1.0				
31	1.7	-				
41	2.3	-				
51	65.0	-				
61	1.7	-				
76	0.38	-				
91	-	-				
102	-	-				
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.134

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.25, 15 ft. from left bank

SAMPLE NUMBER: 12.25-4, core length 183 cm

SAMPLE DATE: September 1, 1981

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	140.	1.3	0.92	0.017	0.0024	
8	145.	2.2	1.6	0.68	0.035	
13	43.	0.4				
18	17.	-				
23	6.0	-	0.35	0.041	0.0041	
28	2.0	-				
31	1.3	-				
41	0.43	-				
51	0.65	-				
61	0.82	-	0.35	0.059	0.0005	
76	0.29	-				
91	0.30	-				
102	0.51	-				
114	0.67	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.135

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.25, 50 ft. from left bank

SAMPLE NUMBER: 12.25-3, core length 54.6 cm

SAMPLE DATE: September 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61						
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.136

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.25, 25 ft. from right bank

SAMPLE NUMBER: 12.25-2, core length 434 cm

SAMPLE DATE: August 25, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.027	0.027	0.0019	
8	23.	0.51				
13	41.	-				
18	97.	-	1.4	0.13	0.0024	
23	19.	-				
28	1.4	-				
31	1.6	-				
41	1.2	-				
51	0.38	-	0.027	0.95	0.046	
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				
127	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.137

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.0, 25 ft. from left bank

SAMPLE NUMBER: 12.0-2, core length 257 cm

SAMPLE DATE: September 9, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.138

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.0, 60 ft. from left bank

SAMPLE NUMBER: 12.0-1, core length 81.3 cm

SAMPLE DATE: September 9, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.139

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.0, 45 ft. from right bank

SAMPLE NUMBER: 12.0-4, core length 305 cm

SAMPLE DATE: September 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.7	<0.0005	<0.0005	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.07	<0.0005	<0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.29	0.0009	0.004	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.140

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 12.0, 25 ft. from right bank

SAMPLE NUMBER: 12.0-3, core length 185 cm

SAMPLE DATE: September 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	2.9	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	0.4	-				
31	-	-	<0.10	<0.0005	<0.0005	
41	trace	-				
51	-	-				
61	-	-				
71	-	-	0.05	0.003	0.001	
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.75, 25 ft. from left bank

SAMPLE NUMBER: 11.75-2, core length 272 cm

SAMPLE DATE: September 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	10.3	0.89				
8	6.2	0.92				
13	19.4	-				
18	45.9	-				
23	48.6	-				
28	5.1	-				
31	2.3	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.142

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.75, 50 ft. from left bank

SAMPLE NUMBER: 11.75-1, core length 122 cm

SAMPLE DATE: September 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.143

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.5, 30 ft. from left bank

SAMPLE NUMBER: 11.5-2, core length 230 cm

SAMPLE DATE: September 23, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	55.2	1.2	0.61	0.550	0.030		
8*	53.	1.1	0.9	0.630	0.030	0.68	0.01
13	61.4	1.1					
18*	90.6	1.6	1.1	2.10	0.150	0.013	0.003
23	36.8	0.6					
28	50.8	0.8					
31*	117.	2.0	1.67	0.320	0.005	0.05	<0.001
41	421.	8.5	3.8	1.50	0.050		
51	16.6	1.8					
61	11.1	1.1					
76	21.2	-	0.36	0.031	<0.0005		
89	72.	-					
102	4.6	-					
114	2.2	-					
127	0.6	-					
140	-	-					
152	-	-					
165	-	-					
178	-	-					
191	-	-					
203	-	-					
216	-	-					
229	-	-					

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was detected by gamma scan.

Table A.144

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.5, 60 ft. from left bank

SAMPLE NUMBER: 11.5-1, core length 208 cm

SAMPLE DATE: September 22, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	3.5	-	0.23	0.001	0.001	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.06	<0.0005	0.001	
41	-	-				
51	-	-	0.03	<0.0009	0.003	
61						
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.145

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.5, 15 ft. from right bank

SAMPLE NUMBER: 11.5-3, core length 7.6 cm

SAMPLE DATE: September 23, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.146

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.25, 25 ft. from left bank

SAMPLE NUMBER: 11.25-2, core length 188 cm

SAMPLE DATE: September 23, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	64.9	3.0				
8	88.8	3.1				
13	72.7	1.6				
18*	38.8	0.9				
23	45.1	1.4				
28*	55.8	1.8				
31	73.6	3.1				
41	54.6	1.0				
51*	157.	1.7				
61	125.	1.5				
76	252	2.6				
91	46.7	1.9				
102	9.9	-				
114	18.7	1.0				

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was identified in gamma scan.

Table A.147

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.25, 55 ft. from left bank

SAMPLE NUMBER: 11.25-1, core length 152 cm

SAMPLE DATE: September 23, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.1	-				
8	trace	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.148

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.0, 40 ft. from left bank

SAMPLE NUMBER: 11.0-2, core length 500 cm

SAMPLE DATE: September 28, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	19.5	1.2	0.13	0.170	0.018		
8	26.8	1.0					
13	29.5	1.1					
18	37.3	2.1					
23	46.9	2.2	0.22	0.035	0.002		
28	44.9	2.6					
31*	71.7	2.3	0.28	0.610	0.050	0.35	0.036
41	57.8	1.9	0.31	0.500	0.033		

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was detected by gamma scan

Table A.149

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.0, 80 ft. from left bank

SAMPLE NUMBER: 11.0-1, core length 297 cm

SAMPLE DATE: September 28, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	72.	1.8	1.1	0.90	0.060		
8*	173.	3.0	3.7	5.10	0.390	5.3	0.07
13*	185.	2.1	2.7	4.20	0.330	3.85	0.09
18	115.	1.2					
23	96.	1.0					
28	197.	2.6					
31	207.	7.9	2.4	1.00	0.037		
41	27.6	1.3					
51	17.5	1.3					
61	14.1	2.2					
76	5.2	-					
91	13.7	0.7					
102	24.5	-	0.29	0.110	0.003		
114	6.8	-					
127	8.7	-					
140	10.9	-					
152	103.	-					
165	99.	-					
178	34.	-					
191	0.9	-					
203	3.5	-					
216	5.2	-					
229	2.3	-					
241	4.3	-					
254	1.2	-					

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was detected by gamma scan.

Table A.150

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.0, 40 ft. from right bank

SAMPLE NUMBER: 11.0-3, core length 198 cm

SAMPLE DATE: September 28, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	4.1	<0.0009	0.0009	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.15	<0.002	0.001	
41	-	-				
51	-	-				
61	-	-				
76	-	-	0.15	<0.001	0.0009	
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.151

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 11.0, 15 ft. from right bank

SAMPLE NUMBER: 11.0-4, core length 190 cm

SAMPLE DATE: September 29, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.8	-				
8	1.1	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76						
91						
102						
114	-	-				
168	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.152

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.75, 25 ft. from left bank

SAMPLE NUMBER: 10.75-3, core length 81.3 cm

SAMPLE DATE: September 30, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.6	-				
8	0.7	-				
13	1.4	-				
18	0.9	-				
23	trace	-				
28	trace	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76						
91						
102						
114						
168						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.153

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.75, 50 ft. from left bank

SAMPLE NUMBER: 10.75-4, core length 244 cm

SAMPLE DATE: September 30, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18						
23						
28						
31						
41						
51						
61						
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.154

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.75, 35 ft. from right bank

SAMPLE NUMBER: 10.75-1, core length 241 cm

SAMPLE DATE: September 29, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.155

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.75, 15 ft. from right bank

SAMPLE NUMBER: 10.75-2, core length 206 cm

SAMPLE DATE: September 29, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.156

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.5, 40 ft. from left bank

SAMPLE NUMBER: 10.5-2, core length 130 cm

SAMPLE DATE: October 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	2.8	-				
8	-	-				
13	trace	-				
18	-	-				
23	trace	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.157

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.5, 80 ft. from left bank

SAMPLE NUMBER: 10.5-1, core length 361 cm

SAMPLE DATE: September 30, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	56.7	1.6	0.95	0.470	0.035	
8	56.7	1.5				
13	172.	3.0	1.53	0.950	0.050	
18	47.6	1.8				
23	27.1	0.7				
28	56.1	-				
31	60.8	-	1.0	0.060	0.004	
41	8.6	-				
51	21.3	-				
56	10.6	-	0.24	0.050	<0.0005	
61						
69	0.9	-				
76						
81	-	-				
91						
94	-	-				
102						
107	-	-				
114						
119	-	-				
132	-	-				
145	-	-				
157	-	-				
170	-	-				
183	-	-				
196	-	-				
208	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.158

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.5, 90 ft. from right bank

SAMPLE NUMBER: 10.5-3, core length 249 cm

SAMPLE DATE: October 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	41.1	-	0.63	0.080	0.003	
8	45.5	-	0.77	0.027	0.0009	
13	4.8	-				
18	0.4	-				
23	0.4	-	0.18	0.002	0.0009	
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
97	-	-				
102	-	-				
114	-	-				
157	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.159

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.5, 35 ft. from right bank

SAMPLE NUMBER: 10.5-4, core length 35.6 cm

SAMPLE DATE: October 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	6.6	0.4				
8	-	-				
13	trace	-				
18	trace	-				
23	trace	-				
28	0.3	-				
31	-	-				
35	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.160

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.25, 60 ft. from left bank

SAMPLE NUMBER: 10.25-4, core length 305 cm

SAMPLE DATE: October 5, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	47.1	1.2				
8*	121.	1.3				
13	118.	1.5				
18	322	5.7				
23	44.2	1.3				
28	10.2	0.7				
31	7.6	1.0				
41	13.6	1.3				
51	38.1	-				
61	10.2	-				
76	0.5	-				
91	0.4	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am was identified by gamma scan.

Table A.161

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.25, 60 ft. from right bank

SAMPLE NUMBER: 10.25-1, core length 353 cm

SAMPLE DATE: October 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	42.1	1.3				
8	135.	2.1				
13	137.	1.6				
18	293.	5.1				
23	29.8	1.3				
28	11.8	trace				
31	12.9	1.7				
41	19.5	1.7				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.162

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.25, 25 ft. from right bank

SAMPLE NUMBER: 10.25-2, core length 38.1 cm

SAMPLE DATE: October 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.5	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
38	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.163

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.0, 225 ft. from right bank

SAMPLE NUMBER: 10.0-3, core length 175 cm

SAMPLE DATE: October 6, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.164

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 10.0, 150 ft. from right bank

SAMPLE NUMBER: 10.0-2, core length 61.0 cm

SAMPLE DATE: October 6, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
58	-	-				
61						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.165

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.75, 30 ft. from left bank

SAMPLE NUMBER: 9.75-6, core length 267 cm

SAMPLE DATE: October 7, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	7.8	-				
8	10.9	-				
13	trace	-				
18	0.4	-				
23	trace	-				
28	trace	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.166

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.75, 75 ft. from left bank of island

SAMPLE NUMBER: 9.75-3, core length 63.5 cm

SAMPLE DATE: October 6, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	22.3	0.5				
8	15.8	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.167

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.75, 20 ft. from left bank of island

SAMPLE NUMBER: 9.75-4, core length 318 cm

SAMPLE DATE: October 7, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.7	-				
8	trace	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31						
41						
51						
61						
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.168

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.75, 40 ft. from right bank

SAMPLE NUMBER: 9.75-1, core length 71.1 cm

SAMPLE DATE: October 6, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	trace	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.169

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.5, 40 ft. from left bank

SAMPLE NUMBER: 9.5-2, core length 109 cm

SAMPLE DATE: October 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.3	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.170

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.5, 80 ft. from left bank

SAMPLE NUMBER: 9.5-1, core length 178 cm

SAMPLE DATE: October 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.2	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28						
31						
41						
51						
61						
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.171

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.5, 45 ft. from right bank

SAMPLE NUMBER: 9.5-3, core length 83.8 cm

SAMPLE DATE: October 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.3	-	0.36	0.0009	0.0009	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.40	0.0005	0.002	
41	-	-				
51	-	-				
61	-	-				
76	-	-	0.25	<0.0009	0.002	
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.172

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.25, 100 ft. from left bank

SAMPLE NUMBER: 9.25-2, core length 45.7 cm

SAMPLE DATE: October 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	10.1	0.4				
8	0.6	-				
13	-	-				
18	-	-				
23	0.6	-				
28	-	-				
31	trace	-				
41	trace	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.173

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.0, 150 ft. from right bank

SAMPLE NUMBER: 9.0-1, core length 58.4 cm

SAMPLE DATE: October 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
58	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.174

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 9.0, 75 ft. from right bank

SAMPLE NUMBER: 9.0-2, core length 68.6 cm

SAMPLE DATE: October 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.3	-	1.13	0.013	0.008	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.02	0.001	0.004	
41	-	-				
51	-	-				
61	-	-	0.09	<0.002	0.002	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.175

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.75, 200 ft. from right bank

SAMPLE NUMBER: 8.75-1, core length 35.6 cm

SAMPLE DATE: October 11, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.176

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.5, 30 ft. from left bank

SAMPLE NUMBER: 8.5-3, core length 229 cm

SAMPLE DATE: October 12, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.4	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91						
102						
114						
145	-	-				
213	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.177

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.5, 150 ft. from right bank

SAMPLE NUMBER: 8.5-1, core length 81.3 cm

SAMPLE DATE: October 12, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	12.4	0.6	0.63	0.105	0.010		
8	22.8	0.8					
13	34.2	0.7	0.26	0.320	0.017	0.15	0.003
18*	9.4	0.5	0.24	0.050	0.002	0.017	0.005
23	6.3	-					
28	0.6	-					
31	-	-					
41	-	-					
51	-	-					
61	-	-					
71	-	-	0.05	0.0009	0.0009		

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am detected by gamma scan.

Table A.178

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.5, 75 ft. from right bank

SAMPLE NUMBER: 8.5-2, core length 76 cm

SAMPLE DATE: October 12, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.9	-	0.08	0.020	0.002	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.05	0.0005	0.001	
41	-	-				
51	-	-				
61	-	-				
76	-	-	0.05	0.01	0.0009	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.179

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.25, 25 ft. from left bank

SAMPLE NUMBER: 8.25-2, core length 66.0 cm

SAMPLE DATE: October 13, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.3	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.180

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.25, 60 ft. from left bank

SAMPLE NUMBER: 8.25-1, core length 132 cm

SAMPLE DATE: October 13, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.181

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.25, 150 ft. from right bank

SAMPLE NUMBER: 8.25-4, core length 55.9 cm

SAMPLE DATE: October 13, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	2.1	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.182

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.0, 40 ft. from left bank

SAMPLE NUMBER: 8.0-3, core length 43.2 cm

SAMPLE DATE: October 14, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.4	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.183

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.0, 80 ft. from left bank

SAMPLE NUMBER: 8.0-4, core length 246 cm

SAMPLE DATE: October 14, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	19.1	0.7	0.10	0.200	0.017	
8	35.6	0.6	0.009	0.270	0.017	
13	18.4	0.3				
18	2.0	-				
23	0.7	-				
28	0.4	-	0.59	0.004	0.0005	
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.30	<0.0005	<0.0005	

Comments: · Radioactivity units are pCi/g (dry weight).

Table A.184

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.0, 120 ft. from right bank

SAMPLE NUMBER: 8.0-2, core length 51 cm

SAMPLE DATE: October 14, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	23.5	1.0	0.28	0.290	0.024	
8	12.4	0.9				
13	2.6	0.4	0.20	0.009	0.002	
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
48	-	-	0.23	0.0005	0.0009	
51	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.185

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 8.0, 60 ft. from right bank

SAMPLE NUMBER: 8.0-1, core length 91.4 cm

SAMPLE DATE: October 14, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.0	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	trace	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.186

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 7.5, 60 ft. from left bank

SAMPLE NUMBER: 7.5-4, core length 68.6 cm

SAMPLE DATE: October 17, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	13.6	trace	0.36	0.140	0.01	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.06	0.002	0.01	
41	-	-				
51	-	-				
61	-	-				
68	-	-	0.18	<0.0009	0.01	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.187

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 7.5, 150 ft. from left bank

SAMPLE NUMBER: 7.5-3, core length 38.1 cm

SAMPLE DATE: October 17, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	15.8	0.8	2.2	0.150	0.010	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
38	-	-	0.12	0.05	0.005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.188

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 7.5, 85 ft. from right bank

SAMPLE NUMBER: 7.5-2, core length 63.5 cm

SAMPLE DATE: October 17, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	15.3	0.9	0.26	0.170	0.011	
8	25.1	0.7	0.20	0.180	0.014	
13	1.9	-				
18	-	-				
23	trace	-				
28	trace	-	0.18	0.002	<0.0005	
31	-	-				
41	-	-				
51	-	-				
61	-	-	0.86	0.002	0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.189

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 7.5, 40 ft. from right bank

SAMPLE NUMBER: 7.5-1, core length 48.3 cm

SAMPLE DATE: October 14, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.6	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
46	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.190

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 7.0, 45 ft. from left bank

SAMPLE NUMBER: 7.0-1, core length 17.8 cm

SAMPLE DATE: October 17, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.191

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 7.0, 80 ft. from left bank

SAMPLE NUMBER: 7.0-2, core length 61.0 cm

SAMPLE DATE: October 17, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	33.9	1.1	0.63	0.390	0.025	
8	8.1	-				
13	0.4	-				
18	0.4	-				
23	0.6	-				
28	-	-				
31	-	-	0.18	<0.0005	<0.0005	
41	0.5	-	0.05	<0.0005	0.001	
51	-	-				
61						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.192

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 6.5, 25 ft. from left bank

SAMPLE NUMBER: 6.5-3, core length 46 cm

SAMPLE DATE: October 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	trace	0.13	0.006	0.013	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.54	<0.0005	0.009	
41	-	-				
46	-	-	0.11	0.006	0.002	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.193

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 6.5, 100 ft. from right bank

SAMPLE NUMBER: 6.5-1, core length 27.9 cm

SAMPLE DATE: October 17, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.5	-	0.04	0.010	0.001	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-	0.16	0.0009	0.0009	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.194

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 6.5, 50 ft. from right bank

SAMPLE NUMBER: 6.5-2, core length 145 cm

SAMPLE DATE: October 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.7	0.4	0.13	0.04	0.005	
8	1.2	0.6				
13	3.6	0.4				
18	12.9	1.0	<0.09	0.250	0.025	
23	5.6	-				
28	trace	-	0.09	<0.0009	0.008	
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.01	<0.0005	0.001	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.195

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 6.0, 55 ft. from left bank

SAMPLE NUMBER: 6.0-4, core length 193 cm

SAMPLE DATE: October 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.7	-	0.24	<0.0005	0.004	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.54	<0.0005	<0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.68	<0.0005	<0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.196

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 6.0, 80 ft. from right bank

SAMPLE NUMBER: 6.0-1, core length 50.8 cm

SAMPLE DATE: October 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	37.1	1.5	0.24	0.420	0.040	
8	44.0	1.1				
13	55.3	1.0	1.4	0.860	0.050	
18	2.6	-				
23	-	-				
28	-	-				
31	-	-	0.24	0.0005	0.001	
41	-	-				
51	-	-	0.26	0.0015	0.0009	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.197

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 6.0, 40 ft. from right bank

SAMPLE NUMBER: 6.0-2, core length 74 cm

SAMPLE DATE: October 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.5	trace	1.7	0.030	0.002	
8	trace	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.06	0.0009	0.002	
41	-	-				
51	-	-				
61	-	-				
74	-	-	0.15	0.0005	0.002	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.198

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 6.0, 30 ft. from right bank

SAMPLE NUMBER: 6.0-3, core length 61.0 cm

SAMPLE DATE: October 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.3	-	0.05	0.008	0.001	
8	0.4	-				
13	0.6	-				
18	0.6	0.5				
23	1.0	-				
28	0.2	-	0.05	0.030	0.010	
31	-	-				
41	trace	-				
51	-	-				
61	-	-	0.39	<0.0005	0.003	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.199

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 5.5, 75 ft. from left bank

SAMPLE NUMBER: 5.5-2, core length 117 cm

SAMPLE DATE: October 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	11.5	1.2	0.14	0.150	0.020	
8	18.0	0.6				
13	33.0	1.7				
18	50.4	1.4	0.99	0.510	0.030	
23	18.7	0.7				
28	0.4	-				
31	-	-				
41	0.6	-	0.13	0.003	0.002	
51	-	-				
61	-	-				
76	-	-				
91	-	-	0.18	0.0009	0.0005	
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.200

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 5.5, 150 ft. from left bank

SAMPLE NUMBER: 5.5-1, core length 102 cm

SAMPLE DATE: October 18, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	47.6	1.9	0.34	0.555	0.035	
8	37.9	1.0				
13	59.1	1.4				
18	87.7	1.4	1.76	1.90	0.130	
23	154.	1.9				
28	181.	3.6	2.7	0.830	0.030	
31	29.2	0.6				
41	27.8	-				
51	1.4	-	0.43	0.020	0.0009	
61	-	-				
76	0.7	-				
91	-	-				
102	0.6	-	0.05	0.005	0.002	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.201

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 5.0, 50 ft. from left bank

SAMPLE NUMBER: 5.0-4, core length 127 cm

SAMPLE DATE: October 20, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	36.3	1.3	4.55	0.340	0.020	
8	50.4	1.6	0.9	0.260	0.020	
13	42.5	-				
18	9.3	-				
23	trace	-				
28	17.9	trace	11.7	0.080	0.003	
31	0.6	-				
38	0.9	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.202

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 5.0, 100 ft. from left bank

SAMPLE NUMBER: 5.0-3, core length 48.3 cm

SAMPLE DATE: October 20, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	23.6	0.9	0.8	0.160	0.017	
8	4.0	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.44	<0.0005	<0.0005	
41	-	-				
48	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.203

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 5.0, 80 ft. from right bank

SAMPLE NUMBER: 5.0-1, core length 173 cm

SAMPLE DATE: October 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.204

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 5.0, 45 ft. from right bank

SAMPLE NUMBER: 5.0-2, core length 76.2 cm

SAMPLE DATE: October 19, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.11	0.0009	0.0009	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.07	<0.0005	0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-	0.14	<0.0005	<0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.205

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 4.5, 50 ft. from right bank

SAMPLE NUMBER: 4.5-1, core length 114 cm

SAMPLE DATE: October 20, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	trace	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.206

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 4.0, 20 ft. from left bank

SAMPLE NUMBER: 4.0-2, core length 122 cm

SAMPLE DATE: October 24, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	4.0	trace	0.68	0.040	0.003	
8	1.3	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.86	<0.0009	0.002	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.10	<0.001	0.001	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.207

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 4.0, 50 ft. from left bank

SAMPLE NUMBER: 4.0-4, core length 99.1 cm

SAMPLE DATE: October 24, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	1.0	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	0.3	-				
91	-	-				
99	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.208

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 4.0, 200 ft. from left bank

SAMPLE NUMBER: 4.0-3, core length 140 cm

SAMPLE DATE: October 24, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.5	trace	0.26	0.003	0.003	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	1.49	0.0009	0.001	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	1.08	<0.0009	0.001	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.209

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 4.0, 175 ft. from right bank

SAMPLE NUMBER: 4.0-1, core length 183 cm

SAMPLE DATE: October 20, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	5.0	0.4	2.39	0.050	0.004	
8	1.8	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.41	0.0005	<0.0005	
35	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.210

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 3.5, 20 ft. from left bank

SAMPLE NUMBER: 3.5-1, core length 142 cm

SAMPLE DATE: October 24, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	0.5	-	0.17	0.001	0.0005	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.10	<0.0005	<0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
114	-	-	0.15	<0.0005	0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.211

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 3.0, 45 ft. from left bank

SAMPLE NUMBER: 3.0-1, core length 78.7 cm

SAMPLE DATE: October 24, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-				
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	-	-				
51	-	-				
61	-	-				
76	-	-				

Comments: Radioactivity units are pCi/g (dry weight).

Table A.212

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 3.0, 80 ft. from left bank

SAMPLE NUMBER: 3.0-2, core length 91.4 cm

SAMPLE DATE: October 24, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	2.8	-	0.86	0.010	0.001	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-				
41	trace	-	0.09	0.0005	0.0009	
51	-	-				
61	-	-				
76	-	-				
91	-	-	0.08	0.0005	0.0005	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.213

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 3.0, 100 ft. from right bank

SAMPLE NUMBER: 3.0-4, core length 213 cm

SAMPLE DATE: October 27, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	15.3	0.7	0.19	0.100	0.010	
8	13.9	0.4				
13	5.0	-	0.31	0.030	0.003	
18	1.5	-				
23	0.9	-				
28	0.7	-				
31	0.6	-				
41	10.7	-	0.32	0.040	0.001	
51	5.5	-				
61	trace	-	0.29	0.010	0.002	
76						
91						
102						
114						

Comments: Radioactivity units are pCi/g (dry weight).

Table A.214

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 3.0, 50 ft. from right bank

SAMPLE NUMBER: 3.0-3, core length 96.5 cm

SAMPLE DATE: October 24, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	4.0	0.5	0.17	0.030	0.002	
8	-	-				
13	-	-				
18	0.9	-				
23	2.3	-	0.17	0.030	0.002	
28	-	-				
31	-	-	0.12	0.0005	<0.0005	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
91	-	-	0.63	<0.0005	0.001	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.215

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 2.0, 100 ft. from right bank

SAMPLE NUMBER: 2.0-2, core length 88.9 cm

SAMPLE DATE: October 28, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	6.7	-	0.06	<0.001	<0.001	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	1.04	0.0005	0.001	
41	-	-				
51	-	-				
61	-	-				
76	-	-				
89	-	-	0.08	0.002	0.001	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.216

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 2.0, 60 ft. from right bank

SAMPLE NUMBER: 2.0-1, core length 71.1 cm

SAMPLE DATE: October 28, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	-	-	0.24	0.050	0.004	
8	-	-				
13	-	-				
18	-	-				
23	-	-				
28	-	-				
31	-	-	0.68	<0.0005	0.0009	
41	-	-				
51	-	-				
61	-	-				
71	-	-	<0.10	<0.0005	0.0009	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.217

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 1.5, 60 ft. from left bank

SAMPLE NUMBER: 1.5-1, core length 112 cm

SAMPLE DATE: November 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am
3	6.6	0.4	0.95	0.050	0.003	
8	11.7	-				
13	15.5	0.6	0.21	0.120	0.020	
18	4.6	0.3				
23	5.9	0.6				
28	8.2	0.5				
31	28.3	0.4	0.14	0.130	0.010	
41	2.1	-	0.06	0.005	<0.0005	
51	-	-				
61	-	-				
76	-	-				
91	-	-				
102	-	-				
112	-	-	0.28	<0.0005	0.0009	

Comments: Radioactivity units are pCi/g (dry weight).

Table A.218

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 1.5, 200 ft. from left bank

SAMPLE NUMBER: 1.5-2, core length 264 cm

SAMPLE DATE: November 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	5.5	0.4	0.14	0.050	0.005		
8	9.6	trace					
13	3.3	trace	0.17	0.030	0.005		
18	3.3	-					
23	11.2	0.6	0.10	0.120	0.010		
28	16.7	0.6					
31	15.3	0.5					
41	11.9	0.7					
51*	22.2	1.0	0.55	0.280	0.030	0.16	0.03
61	62.5	1.0					
76	105.	1.4	1.68	0.340	0.010		
91	9.0	0.8					
102	8.7	0.7					
114	29.8	-	0.82	0.040	<0.003		

Comments: Radioactivity units are pCi/g (dry weight).

* ^{241}Am detected in gamma scan.

Table A.219

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 1.0, 60 ft. from left bank

SAMPLE NUMBER: 1.0-3, core length 63.5 cm

SAMPLE DATE: November 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	3.5	0.4	0.14	0.040	0.004		
8	4.4	0.5					
13	5.4	0.7					
18	7.4	0.4					
23	10.7	0.4	0.12	0.190	0.010		
28	5.6	-					
31	0.6	-					
41	0.3	-					
51	-	-					
61	-	-	0.86	0.0009	0.0009		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.220

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 1.0, 300 ft. from left bank

SAMPLE NUMBER: 1.0-4, core length 40.6 cm

SAMPLE DATE: November 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	trace	-	0.45	0.0005	<0.001		
8	-	-					
13	-	-					
18	-	-					
23	trace	-	0.42	0.002	0.0005		
28	-	-					
31	-	-					
38	-	-					
41							

Comments: Radioactivity units are pCi/g (dry weight).

Table A.221

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 1.0, 80 ft. from right bank

SAMPLE NUMBER: 1.0-2, core length 71.1 cm

SAMPLE DATE: November 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	17.3	0.9	0.19	0.130	0.013		
8	29.8	1.4					
13	47.0	1.0					
18	74.9	1.4	0.50	0.650	0.037		
23	47.3	1.0					
28	23.5	0.4	0.39	0.086	0.003		
31	6.2	-	0.43	0.010	0.0005		
41	0.4	-					
51	-	-					
61	-	-					
71	-	-	0.14	0.002	<0.0009		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.222

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 1.0, 40 ft. from right bank

SAMPLE NUMBER: 1.0-1, core length 39.4 cm

SAMPLE DATE: November 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	9.7	0.4	1.58	0.080	0.015		
8	14.4	1.2					
13	23.3	1.4					
18	32.7	1.2					
23	74.7	1.3	0.41	0.510	0.030		
28	48.1	0.7					
31	56.4	1.2					
38	0.8	-	0.12	0.004	0.002		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.223

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 0.25, 25 ft. from left bank

SAMPLE NUMBER: 0.25-1, core length 40.6 cm

SAMPLE DATE: November 1, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	0.3	-	0.90	0.003	0.0009		
8	-	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-	0.27	0.0009	0.003		
38	-	-					

Comments: Radioactivity units are pCi/g (dry weight).

Table A.224

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 0.25, 150 ft. from right bank

SAMPLE NUMBER: 0.25-2, core length 107 cm

SAMPLE DATE: November 2, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	8.6	0.3	0.55	0.059	0.003		
8	1.3	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	0.5	-	0.10	0.0009	0.001		
41	-	-					
51	-	-					
61	-	-					
76	-	-					
91	-	-					
102	-	-	0.13	<0.001	0.001		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.225

CLINCH RIVER BASIN INVENTORY

LOCATION: CRM 0.25, 75 ft. from right bank

SAMPLE NUMBER: 0.25-3, core length 30.5 cm

SAMPLE DATE: November 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	0.9	0.3	0.09	0.006	0.004		
8	-	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-	0.27	0.0009	0.001		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.226

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 570.0, 150 ft. from left island bank

SAMPLE NUMBER: TRM 570.0-1, core length 117 cm

SAMPLE DATE: November 9, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	-	-					
8	-	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-					
41	-	-					
51	-	-					
61	-	-					
76	-	-					
91	-	-					
102	-	-					
114	trace	-					

Comments: Radioactivity units are pCi/g (dry weight).

Table A.227

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 570.0, 80 ft. from right bank

SAMPLE NUMBER: TRM 570.0-2, core length 38.1 cm

SAMPLE DATE: November 9, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	-	-					
8	-	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-					
38	-	-					

Comments: Radioactivity units are pCi/g (dry weight).

Table A.228

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 569.0, 40 ft. from right bank

SAMPLE NUMBER: TRM 569.0-1, core length 122 cm

SAMPLE DATE: November 9, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	-	-	1.7	0.002	0.0009		
8	-	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-	0.44	0.002	<0.001		
41	-	-					
51	-	-					
61	-	-					
76	-	-					
91	-	-					
102	-	-					
114	-	-	0.21	0.002	0.0009		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.229

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 568.0, 80 ft. from left bank

SAMPLE NUMBER: TRM 568.0-1, core length 107 cm

SAMPLE DATE: November 9, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	0.9	-	0.39	0.011	0.002		
8	1.6	-					
13	3.9	-	0.21	0.016	0.0009		
18	-	-					
23	-	-					
28	-	-					
31	-	-					
41	-	-					
51	-	-					
61	-	-					
76	-	-	0.06	0.0009	0.001		
91							
102							
114							

Comments: Radioactivity units are pCi/g (dry weight).

Table A.230

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 566.8, 80 ft. from left bank

SAMPLE NUMBER: TRM 566.8-2, core length 38.1 cm

SAMPLE DATE: November 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	0.2	-	0.22	0.010	0.0005		
8	1.5	-	0.77	0.010	<0.003		
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-					
38	-	-	0.63	0.003	0.001		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.231

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 566.8, 200 ft. from left bank

SAMPLE NUMBER: TRM 566.8-1, core length 37.5 cm

SAMPLE DATE: November 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	1.9	-	0.09	0.020	0.0005		
8	trace	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-	0.13	<0.002	0.0005		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.232

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 566.8, 40 ft. from right bank

SAMPLE NUMBER: TRM 566.8-3, core length 94.0 cm

SAMPLE DATE: November 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	7.1	0.8	0.12	0.065	0.010		
8	5.1	0.4					
13	17.8	0.6	2.12	0.140	0.007		
18	6.3	0.5					
23	-	-					
28	-	-					
31	-	-					
41	-	-					
51	-	-					
61	-	-					
76	-	-					
91	-	-	0.19	0.002	0.0009		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.233

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 565.8, 120 ft. from left bank

SAMPLE NUMBER: TRM 565.8-3, core length 24.1 cm

SAMPLE DATE: November 3, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	-	-	0.73	0.0009	0.003		
8	-	-					
13	-	-					
18	trace	-	3.3	0.001	0.002		
23	-	-					

Comments: Radioactivity units are pCi/g (dry weight).

Table A.234

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 565.8, 150 ft. from right bank

SAMPLE NUMBER: TRM 565.8-2, core length 88.9 cm

SAMPLE DATE: November 4, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	10.5	-	3.0	0.090	0.0009		
8	12.6	0.8					
13	18.2	0.7					
18	20.7	trace					
23	47.9	0.7	0.5	0.320	0.017		
28	31.8	0.5					
31	13.7	trace					
41	11.7	-					
51	1.5	-					
61	0.5	-					
71	trace	-	0.45	0.005	0.002		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.235

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 565.8, 60 ft. from right bank

SAMPLE NUMBER: TRM 565.8-1, core length 24.4 cm

SAMPLE DATE: November 4, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	-	-					
8	-	-					
13	-	-					
18	-	-					
23	-	-					

Comments: Radioactivity units are pCi/g (dry weight).

Table A.236

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 564.2, 50 ft. from left bank

SAMPLE NUMBER: TRM 564.2-2, core length 94 cm

SAMPLE DATE: November 7, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	1.4	-					
8	4.5	-					
13	3.1	-					
18	0.74	-					
23	-	-					
28	-	-					
31	-	-					
41	-	-					
51	-	-					
61	-	-					
76	-	-					
91	-	-					

Comments: Radioactivity units are pCi/g (dry weight).

Table A.237

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 564.2, 50 ft. from left bank

SAMPLE NUMBER: TRM 564.2-2, core length 94 cm

SAMPLE DATE: November 7, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	-	-					
8	-	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-					
41	-	-					
51	-	-					
61							
76							
91							
102							
114							

Comments: Radioactivity units are pCi/g (dry weight).

Table A.238

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 563.0, 60 ft. from left bank

SAMPLE NUMBER: TRM 563.0-1, core length 83.8 cm

SAMPLE DATE: November 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	0.5	-	0.10	0.013	0.004		
8	0.6	-					
13	0.5	-					
18	0.9						
23	2.1	-	0.40	0.012	0.0005		
28	-	-					
31	trace	-					
41	-	-					
51	-	-					
61	-	-					
76	-	-	1.7	0.002	0.0005		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.239

CLINCH RIVER BASIN INVENTORY

LOCATION: TRM 563.0, 50 ft. from right bank

SAMPLE NUMBER: TRM 563.0-2, core length 25.4 cm

SAMPLE DATE: November 8, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	0.7	-	0.18	0.004	0.002		
8	0.7	-					
13	0.8	-					
18	trace	-					
23	0.3	-	0.23	0.002	0.0009		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.240

CLINCH RIVER BASIN INVENTORY

LOCATION: ERM 2.0, 80 ft. from left bank

SAMPLE NUMBER: ERM 2.0-1, core length 254 cm

SAMPLE DATE: November 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	1.7	-					
8	2.2	0.2					
13	3.6	0.3					
18	4.6	-					
23	2.0	-					
28	3.6	-					
31	5.7	-					
41	0.8	-					
51	trace	-					
61	-	-					
76	-	-					
91	-	-					
102	-	-					
114							

Comments: Radioactivity units are pCi/g (dry weight).

Table A.241

CLINCH RIVER BASIN INVENTORY

LOCATION: ERM 2.0, 40 ft. from right bank

SAMPLE NUMBER: ERM 2.0-2, core length 94.0 cm

SAMPLE DATE: November 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	-	-					
8	-	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-					
41	-	-					
51	-	-					
61	-	-					
76	-	-					
91	-	-					

Comments: Radioactivity units are pCi/g (dry weight).

Table A.242

CLINCH RIVER BASIN INVENTORY

LOCATION: ERM 1.0, 60 ft. from left bank

SAMPLE NUMBER: ERM 1.0-2, core length 124 cm

SAMPLE DATE: November 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	6.9	-	0.45	0.030	0.005		
8	0.3	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-					
41	trace	-	1.17	0.002	0.0005		
51	-	-					
61	-	-					
76	-	-					
91	-	-					
102	-	-					
114	-	-	0.23	0.0009	0.0009		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.243

CLINCH RIVER BASIN INVENTORY

LOCATION: ERM 1.0, 80 ft. from right bank

SAMPLE NUMBER: ERM 1.0-1, core length 86.4 cm

SAMPLE DATE: November 10, 1977

Distance from top of core (cm)	^{137}Cs	^{60}Co	^{90}Sr	$^{239,240}\text{Pu}$	^{238}Pu	^{241}Am	^{244}Cm
3	1.9	-	0.99	0.020	0.003		
8	-	-					
13	-	-					
18	-	-					
23	-	-					
28	-	-					
31	-	-	0.06	<0.0009	0.0005		
41	-	-					
51	-	-					
61	-	-					
76	-	-					
86	-	-	0.11	0.002	0.001		

Comments: Radioactivity units are pCi/g (dry weight).

Table A.244

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